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Notes on Military Orthopaedics.

IV. ON MALUNITED AND UNUNITED FRACTURES.

BY

LIEUTENANT-COLONEL ROBERT JONES, CH.M., F.R.C.S.I. (HON.),

INSPECTOR OF MILITARY ORTHOPAEDICS, ARMY MEDICAL SERVICE.

THE conditions to which the terms "delayed union" and "non-union" are applied may be difficult to distinguish, because often we find that, even after months, osteogenetic changes leading to consolidation will take place in a fracture considered to be permanently united. If we are to avoid disagreeable experiences, we must recognize that for various reasons, some of which we know and some of which are still unknown, a certain proportion of fractures take longer to unite than others. Some years ago I was called to a distance to operate upon a fractured femur. The accident had occurred three months previously. The length and alignment were good, but the patient had some sugar in the urine, and we decided, instead of operating, to place the limb, free from circular constriction, in a Thomas's bed splint (Fig. 1). Certain other procedures which I advise were not carried out, but in four weeks very firm consolidation had occurred. This case affords an example of a clinical type. There may be several weeks of apparent inactivity in callus formation, and then consolidation occurs quite rapidly. If a practitioner takes care to maintain a good length and accurate alignment, he should look forward cheerfully to a happy issue even if union is delayed. As a rule, this is exactly what he does not do. At the end of the fifth week he begins to feel nervous, he disturbs the bone ends, modifies his methods, and by degree transforms into a permanent disability a condition which merely demanded patience.

FIG. 1.—Thomas's bed splint

Delayed union is most common in the middle of the femur, in the humerus at the junction of the middle and upper third, and in the tibia and fibula at their lower third.

CAUSES OF DELAYED UNION.

In many cases there is an obvious reason for the delayed union. Very often it is not due to malposition; it is, indeed, quite remarkable how often in delayed and ununited fractures the bones are almost automatically opposed. I will not waste time by doing more than mention some of the academic causes assigned—such as tabes, syphilis, and acute diseases. I would prefer to focus attention on the more real and practical conditions which have a direct relation to the method of treatment.

Circular Compression.

An obvious and frequent cause is inefficient reduction, and later on, in dealing with malunion, I will refer to this in greater detail. I will, however, deal first with another cause of delayed union—circular compression of the limb by splint and bandage.

A fundamental principle in the treatment of fractures is to *secure and maintain good length and good alignment*, and in attaining these ends care should be taken that the circulation of the limb shall be in no way hampered. The splint used should be so constructed that after the bandage is applied the fingers can be readily introduced between it and the lateral aspects of the limb. In looking back upon the ununited fractures I have seen, I generally recall an attenuated limb and a thick plaster case. When the casing is removed the blanched limb becomes red, and the blanched bone begins to take its fill of blood. It is because plaster generally fails to secure length and adequate blood supply that it is a prolific source of delayed union and ununited fracture. I would not condemn the use of plaster altogether, much as I dislike it, but it should be used with discrimination. It should be fixed in such a way that the limb remains in extension and in good alignment, and that the circulation of the limb is in no way hampered.

FIG. 2.—"Damming" or congestive treatment of ununited fracture of the humerus by Thomas's method.

Duration of Period of Consolidation.

Textbooks have led us astray in regard to the period required for the consolidation of bone. Fractured adult bones are never firm after four or five weeks, as the books would lead us to infer.

For practical purposes, ignorance of this fact may make no difference in the case of the upper limb, but in the case of the lower limb, where the effect of body weight has to be considered, to underestimate the period of consolidation is to invite disaster.

TREATMENT.

If a case of delayed union is first seen in the seventh or eighth week we need do no more than make quite sure of good alignment, length, and circulation. Nature will do the rest.

Percussion and Damming.

If a long time has elapsed the need for action is more pressing, and we must endeavour to transform the indolent callus into an osteogenetic factory, so that bone may be generated. I know of no better means than that suggested by H. O. Thomas, and named by him "percussion and damming."

Femur.

As an example, I will take non-union of the femur with shortening probably of two or three inches. Under an anaesthetic the soft fibrous callus is broken down and the fractured ends are turned towards the skin and beaten with a mallet; a pulley is then applied to the limb, and as much length as possible gained. A Thomas knee splint is then adjusted and the extension maintained. Two pieces of indiarubber tubing are tied around the limb, one three or four inches above the fracture, and the other at an equal distance below. They are kept on, to begin with, for about twenty minutes each day until they can be borne for several hours at a time. They should be kept tied sufficiently tightly to produce considerable swelling and stasis. Usually in two or three weeks callus is thrown out, and the osteoblasts begin actively to produce bone. Local congestion between two indiarubber tubes is much more effective than congestion by one proximal tube. I can recall many cases in which bones that had remained ununited for several months became firmly consolidated after use of this simple device (invented by Thomas and ascribed twenty years later to Bier) for stimulating osteogenesis. The method of applying the indiarubber tubes to produce congestion is shown, applied to the humerus, in Fig. 2.

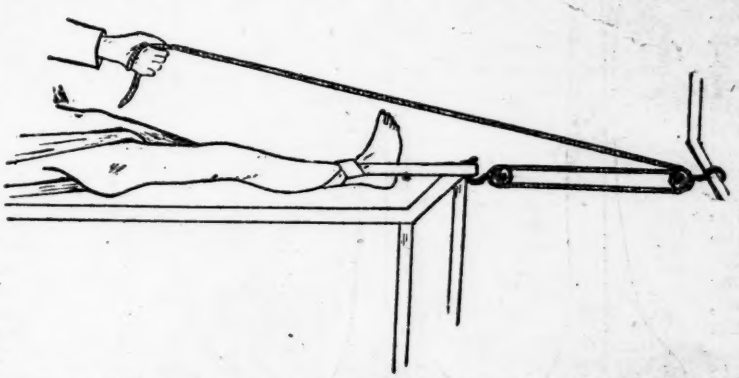


FIG. 3.—Pulley used in setting and operating upon fracture of tibia and fibula; counter-extension shown.

Tibia and Fibula.

In old ununited fractures of the tibia and fibula complete extension is not so easily attained, and it may be necessary to remove bone. If this be done, the operation should be performed under pulley extension (Fig. 3), or by turning the ends of the bone out of the wound and engaging the fragments in shoehorn fashion after the method of Lane. If the case be suitable and the surgeon possess the mechanical skill subsequently to keep a good alignment, it is best to avoid the introduction of plates or screws. The bones should be kept in absolutely good apposition, and where it can be easily accomplished they should be wrapped in transplanted fascia which will act as a binding membrane in the same way as periosteum.

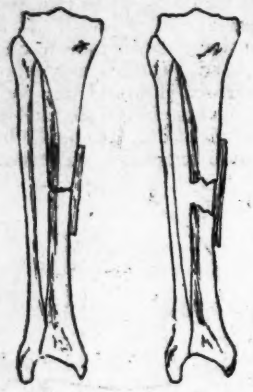


FIG. 4.—Bone grafting. A, Lateral bone graft for fracture. B, Lateral bone graft for a case in which bone has been removed.

In another type of case in which the bone is eburnated with feeble callus production, it is well after sawing the ends to crenate the edges with bone nibblers, and to transplant bone from some other part of the body. The sides of the fractured ends should be prepared to receive the transplanted portion, which can be affixed laterally (Fig. 4 A), or driven into each end of the medulla. The transplanted bones and the fractured ends are held in position with transplanted fascia wrapped around them.

Figures 5 A and 5 B illustrate a method of sliding a transplant to bridge over the fracture. Albee's twin saw is used to enable the operator to detach with mathematical correctness a strip of bone partly above and partly below the line of fracture. A chisel is used at either end to complete the detachment. The shorter detached piece (in the figure the lower) is removed and the larger piece is slid down (Fig. 5 B.)

Autogenous transplantation of bone is far more effective than transplantation from another patient or from an animal. A bone graft without periosteum is sometimes as effective as one taken with its periosteum. This fact is important, for if bone is removed from some other part of the body subperiosteally, the removed bone is very rapidly replaced by new bone. Where convenient, however, the periosteum should be retained.

Non-union is very apt to occur where a wide gap exists between the bones. In the case of fracture of the tibia of long standing, where the growth of the fibula has progressed, I have operated with success by removing a large lateral slice from the upper end of the fractured tibia, and using it as a bridge to span the gap (Fig. 4 B).

Compound Comminuted Fractures: Retention of Fragments.

This leads me to speak of compound comminuted fractures associated with loose pieces of bone. The removal of these pieces is very frequently the cause of non-union. If loose pieces are felt, provided the wound is not suppurating, they should be scrupulously saved; the pieces, if quite loose, should be taken out of the wound and laid in alcohol, and then carefully replaced in position or round the site of fracture. In such cases I refrain from introducing any foreign bodies, such as nails, plates, or wires. If a drain be used at all, it should be for forty-eight hours only.

Weak Union: Exuberant Callus.

Malunion of the femur of six or seven weeks' duration can almost always be corrected by powerful manipulation. The same is true of all the long bones. At my clinic every week I am accustomed, by wrench or hand, to correct malunited fractures of several weeks' standing. The method is especially applicable to a Colles's or a Pott's fracture.

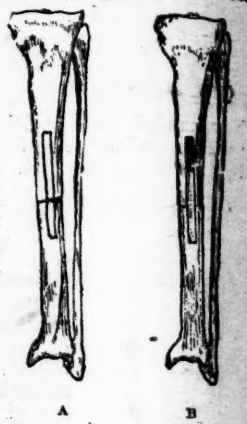


FIG. 5. — Bone grafting. A, Diagram showing incisions through tibia by twin saw and chisel, detaching a strip above and below the fracture. B, Second stage of operation. The lower fragment has been removed, and the upper has been pushed down so as to bridge the fracture (Albee).

Weak union can be diagnosed almost with certainty even when ordinary manipulation fails to detect it. It is suggested by tenderness on pressure over the site of the old fracture, and confirmed by the additional sign of exuberant callus exudation. A malunited fracture of some months' duration, if accompanied by these two signs, can usually be corrected by forcible manipulation. This is a very important clinical fact to remember from the point of view of immediate or gradual correction.

Exuberant callus is sometimes so abundant as to be mistaken for malignant disease, and I have met with many instances in which the patient has narrowly escaped amputation. This error is more likely to occur in the femur than in any other of the long bones, especially when the force applied to produce it has been so slight as to suggest that the fracture was spontaneous.

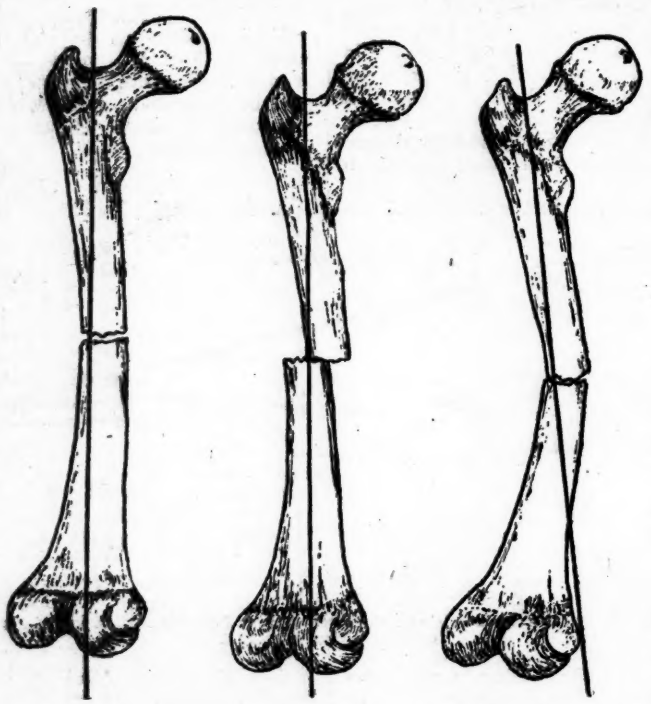


FIG. 6.—End-to-end apposition of fractured femur. A, End-to-end apposition and perfect alignment; B, imperfect apposition but with good alignment; C, end-to-end apposition with faulty alignment.

MALUNION.

Malunion of a fracture can always be prevented, and should raise a strong presumption of inefficient treatment. Our duty, therefore, is to examine the cause of malunion, and to arm ourselves with a knowledge of the weak points in our method of treatment.

The causes of malunion may be found (1) in errors in the initial treatment or setting of the fracture, (2) in errors in the method of maintaining the fracture in position, or (3) in errors of after-treatment.

I. INEFFICIENT REDUCTION OF THE FRACTURE.

Malunion of a fractured bone is due to this cause more often than is commonly supposed. Sometimes it is due to want of knowledge, but more often to want of experience and confidence.

It is necessary, of course, to have a clear knowledge of the anatomical proportions of the limb and of the mechanics of its action; but it is still more important to know the

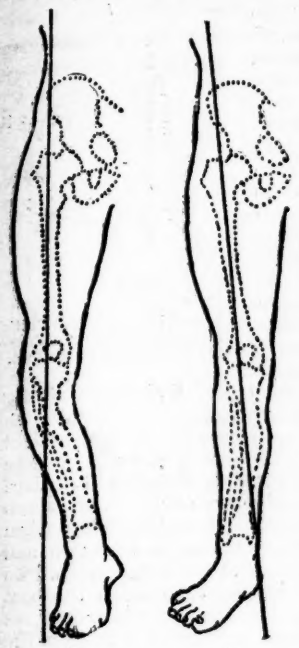
nature of the impairment of function likely to occur after any particular fracture, so as to be ready to take means to anticipate and to prevent it.

Common causes of inefficient reduction are—

(*a*) Insufficient extension of the limb in fractures of long bones—such as the femur or humerus—so that the overriding of the fragments is not completely corrected.

(*b*) In Pott's fracture there is always an associated dislocation of the ankle outwards and backwards. If the backward dislocation is not fully corrected there is pain over the front of the ankle when the patient walks, and, in addition, inability to dorsiflex the ankle, which causes a serious impairment of function.

(*c*) In Colles's fracture the backward displacement of the lower fragment is very serious, and is not always corrected by the orthodox traditional "hand-shaking" method of reduction. The lower fragment carries with it the articular surface for the head of the ulna, and if this is out of line, the upper and lower articulations between the radius and ulna are thrown "out of truth" and the radius will not rotate properly. This leads to impairment of pronation and supination, and consequent very serious interference with function.



A B

FIG. 7.—Diagrams to illustrate effects of malunion of tibia. A, Malunited fracture of tibia producing bow-leg and throwing body weight on to outer side of foot. B, Malunited fracture of tibia in such a position that the weight of the body is carried to the inner side of the foot, producing flat-foot.

These are merely instances of how a want of sufficient determination in reducing the initial deformity may play an important part in causing subsequent loss of function. I have referred to them because they occur in common fractures, with the treatment of which everybody ought to be familiar, yet I see a large number of cases of serious impairment of function really due to these causes.

II. FIXATION AFTER SETTING OF FRACTURE.

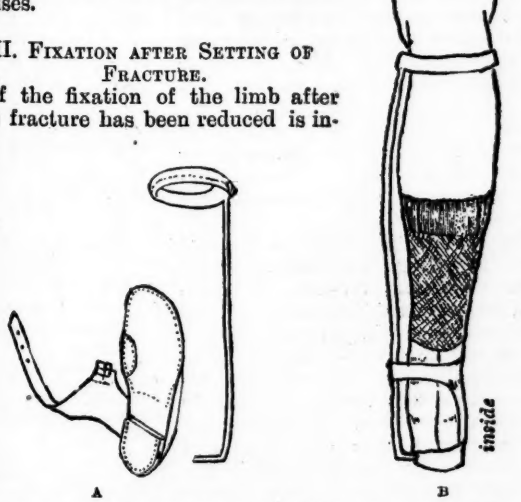
If the fixation of the limb after the fracture has been reduced is inefficient so that material amount of movement can take place between the fragments, then every such movement causes pain, and produces a reflex contraction of the muscles. This reflex spasm may very readily cause overriding of the fragments, and in the case of the shafts of long bones lead to shortening. In fracture of the neck of the femur it modifies the angle between the neck and the shaft and so causes the flexion of the joint, with the result that body weight is not transmitted in the normal line. In consequence of this, crippling changes of an osteo-arthritic character subsequently occur in the joint. Faulty alignment of the bones may arise from inefficient fixation, even in a case in which the fracture was originally fully reduced and the bones brought into correct alignment (Fig. 6). The result is that the true line of the shaft of the bone is not maintained, and the joint at one end of the bone is thrown out of its proper relation to the joint at the other; in consequence, muscles do not act in their correct line, and the usefulness of the limb is impaired. Further, in the lower limb the line of transmission of body weight is altered, and this throws an improper strain on joints and ligaments, resulting in changes in the joints, in flat-foot, and in other disabling deformities. For instance, in fracture of the tibia and fibula a little shortening of the limb does not seriously impair its strength if the alignment is good. A slight bow-leg even is not serious (Fig. 7 A), for slight bow-leg is a harmless type. Many muscular and powerful men are, indeed, slightly bow-legged, but in a valgoid deformity the weight of the body is carried too far to the inner side of the foot, and this throws too much weight on the arch, and the result is a flat and everted foot (Fig. 7 B).

FIG. 9.—Position for fractures about elbow in the adult. The elbow is even more flexed in children.

Any valgus deformity at the knee, in the leg, or at the ankle is a weakening deformity, and greatly reduces the usefulness of the limb. It is a good fault, therefore, to err on the side of producing a slight bow-leg, with its varoid accompaniment, if there is to be any error at all. In cases of malunion, when the callus is still tender, it is generally not difficult to readjust the limb by manipulation without having to perform an open operation. In the case of the femur, this can usually be done two, or even three, months after the original fracture. As a rule, the worse the position of the bones the longer will the callus take to consolidate.

The next point to which I would draw attention is that callus may yield in such a way as to throw the bone out of proper alignment. A good example of this is frequently afforded by cases of Pott's fracture which have been correctly reduced, and six weeks later are in good position and united. A month after this, however, the patient may complain of some pain at the site of the fracture, and also of symptoms of flat-foot.

Here the counter pressure of the ground on the foot forces the astragalus against the external malleolus, and so produces a lever action, straining the callus. To avoid this, every case of Pott's fracture should be set to walk with the inner side of the heel raised to keep the foot inverted, and if the patient is a heavy subject an outside brace also should be worn (Fig. 8 A and 8 B). It is disconcerting and puzzling to see a perfectly good functional result replaced by a bad one; to avoid disappointment of this kind it is advisable, particularly in fractures of the lower limb, to apply some sort of guard to prevent straining of the callus.



A B

FIG. 8.—Boot and iron for use after Pott's fracture. A, Showing the boot with crooked and elongated heel and the outside iron; B, the same applied.

FIG. 10.—To show the complete supination and extension of the arm necessary in fractures of radius and ulna.

THE FUNCTIONAL IMPAIRMENT ASSOCIATED WITH VARIOUS FRACTURES.

Before discussing the treatment to be adopted in particular cases, it is well to recognize the forms of impairment of functions commonly associated with each fracture.

Humerus.

Fractures of the humerus near the shoulder-joint (that is, those of the surgical neck and above the insertion of the deltoid) are commonly associated with inability to abduct the limb fully. The reason is that the upper fragment is often tilted outwards, and end-to-end union does not take place. In order to avoid this, the surgeon's object when setting the fracture should be to bring the fragments end to end if possible. He should pull the arm at right angles to the trunk, or even straight upwards until all overriding is completely overcome, and should then endeavour to engage the end of the lower fragment on the broken end of the upper fragment. By pressing the two together he can at once tell if they are engaged or are sliding past each other. If they are engaged, the arm can be gently brought down to the side and secured to the trunk by bandages. Once the fragments are engaged they are not likely to become disengaged again.

Fig. 11. — Dorsiflexion of wrist for fracture of carpus.

Elbow-joint.

In fractures about the elbow-joint, with the single exception of fracture of the olecranon process, the usual disability is limitation of flexion.

The limb should therefore be extended to push away any fragment likely to obstruct extension afterwards. The forearm should be supinated to make sure of clearing a right of way in that direction, and then the elbow should be fully flexed and bandaged (Fig. 9), care being taken not to produce tight circular constriction of the limb in any part. In this way we may make sure that there shall be no callus exudate in the bend of the elbow, and at the same time the tendon of the triceps acts as a posterior splint.

When a stiff elbow, after an injury, has to be dealt with, the same manœuvres are gone through so as to force the recently formed callus out of the way until full flexion is secured. Usually this can be done on one occasion, but in some cases it may be necessary to flex the joint in two or three stages.

Radius and Ulna.

In fractures of the bones of the forearm the disability most to be feared is obstruction to supination; pronation is usually good. Therefore, in setting the fracture, or when breaking down callus and resetting the fracture, the surgeon should extend the forearm and supinate fully in order to make sure of a clear right of way for supination, and then set the fracture, taking great care that the ulna is perfectly straight, and that there is no lateral pressure anywhere on the shaft of the radius (Fig. 10). It must, however, be remembered that the radius is a curved bone which rotates on the ulna like the handle of a bucket; if the arched shape of the radius is destroyed the joints at its ends will be out of their true line, and impairment of function will be the result.

Fig. 12. — Malunited Pott's fracture, showing eversion of foot.

Carpus.

Fractures of the carpus often result in a stiff wrist in a flexed position. Every schoolboy knows that the grasp of the hand is weakest when the wrist is flexed. Therefore, in every case of fracture or injury of the carpus, the wrist should be put up in a hyperextended position (Fig. 11).

If the wrist has been allowed to get stiff in a flexed position, it should be dorsiflexed under an anaesthetic and fixed in that position. In rare instances a fragment of the scaphoid is displaced on to the dorsum and blocks extension; if this has occurred, it may be necessary to remove the fragment before the wrist can be hyperextended.

Ankle-joint.

When we turn to fractures near the ankle-joint we find that many patients complain of both pain and stiffness which lasts for months or years. A study of the causes brings to light two principal factors responsible for loss of function here. Eversion of the foot, for instance, is fairly well recognized as one of them (Fig. 12). If the patient is allowed to recover with the ankle in a valgus position, the body weight when he stands will fall too far to the inner side of the foot, and at once all the factors which make for the production of flat-foot are produced. It is, however, not sufficiently well recognized that these conditions may be at work in an ankle which has every appearance of being in good position when the patient is discharged from hospital. Straining of young callus by body weight is very common in fractures around the ankle-joint, owing to the patient being allowed to walk on the unprotected joint too early. I therefore always turn these patients out with a "crooked" heel and often with an outside brace as well, to ensure that the body weight shall fall on the outer side of the foot (Fig. 8 A, 8 B). The natural corollary of this is that if body weight will produce a valgus deformity by straining the callus, it will also correct it if we "crook" the boot well, and therefore when the callus is already strained in the valgus direction, and the patient comes with a stiff painful ankle and foot, all we need do in many of the milder cases is to crook the boot well on the inner side, and let the patient "walk out" his deformity. In older and more severe cases it is from the first necessary or advisable to wrench the foot into an inverted position under an anaesthetic, and then let him walk with his heel well crooked; this is made easier by the application of an outside brace (Fig. 8). If this after-treatment is not persisted in for some weeks the condition will most likely recur.

Fig. 13.—Malunited Pott's fracture, showing dislocation backwards of the foot.

The second great disability, after injuries about the ankle-joint, is inability to dorsiflex the ankle. The patient, when walking, cannot get forward on to the toes and fore part of the toes without pain across the front of the ankle.

This is a very difficult condition to correct once the deformity has been allowed to become established. The proper thing is to prevent it when the injury is recent; to make sure of this the surgeon should dorsiflex the foot and so satisfy himself that he has commanded a complete and clear right of way for this movement in the future.

Both these disabilities are well illustrated by cases of Pott's fracture; this injury essentially consists of a fracture of the fibula about three or four inches above the external malleolus with a dislocation of the ankle outwards and backwards (Fig. 13). There may be minor complications, such as fracture of the tip of the internal malleolus or the less well recognized fracture of the edge of the articular surface of the tibia. These, however, do not alter the general nature of the disability.

The method of reduction I adopt is the following: The knee is flexed to relax the calf muscles. If these muscles give trouble, tenotomy of the Achilles tendon will put them out of action, but this is only necessary in exceptional cases, and strength returns but slowly after this apparently harmless operation. Grasping the foot by the heel in one hand and the dorsum in the other, the foot is pulled and everted to make sure of thoroughly disentangling the fractured ends. While still pulling, the foot is fully inverted and the ankle dorsiflexed. If the ankle cannot be dorsiflexed fully, it means that there is a definite posterior dislocation or that the anterior edge of the tibia is fractured. It is necessary then to push the tibia back and bring the foot well forward until the ankle can be well dorsiflexed. The foot is then fixed in splints in the fully inverted

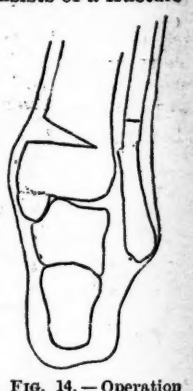


Fig. 14. — Operation for malunited Pott's fracture; wedge from tibia and osteotomy of fibula.

position and dorsiflexed a little beyond the right angle. If the surgeon maintains it in this position, he may wait with confidence for a good result. If he is content with a less thorough reposition, he is in great danger of getting a result with some stiffness, pain, or limitation of movement, which will seriously interfere with comfort in walking. Since the days of Percival Pott many splints have been devised. The shape and style of the splint does not matter a jot. The important element is the surgeon. If he knows his work, he will fix the foot in the position described and will be rewarded by a good result.

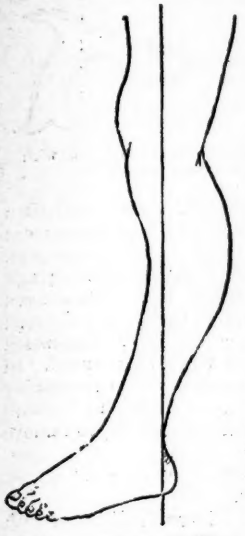
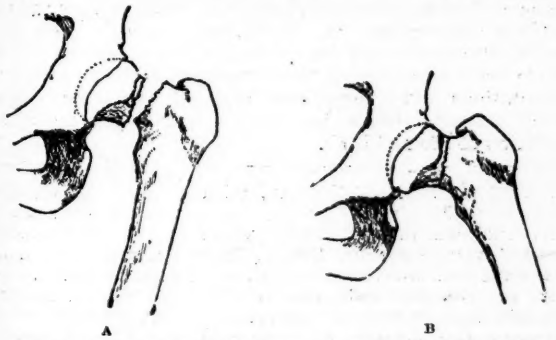


FIG. 15.—Diagram to illustrate position of leg and foot in posterior bowing of fractured tibia.

As we have seen, malunion and consequent functional disability depend on two factors: (*a*) eversion, (*b*) diminished dorsiflexion.

(*a*) Eversion often calls for operation. In comparatively simple cases all that is needed is to pass a chisel through the internal malleolus, and also through the site of the old fibular fracture. The foot should then be forcibly inverted, and treatment continued to maintain the inversion. In the more severe type of case an open operation is advisable. A wedge of bone is removed from the lower end and inner side of the tibia (Fig. 14). The wedge should only go a distance of four-fifths through the bone. An osteotomy of the fibula is next performed. The wounds are closed, and not dressed for twelve or fourteen days. The stitches are then removed, and, under gas, the limb is fractured by forcible inversion. This two stage operation eliminates the anxiety which must attend the treatment of a compound fracture, and this is an important matter when powerful manipulation is necessary. For many reasons, however, it may be advisable to complete the reduction at the time of operation.

(*b*) Dorsiflexion of the ankle may be blocked by callus exudate the result of fracture of the anterior articular edge of the tibia. Complete dorsiflexion of the ankle at the time of accident would save the patient from this deformity, for the fragment of bone would in this way be pushed to one side, but if this has not been done, and at a later date we find that dorsiflexion is prevented, an incision should be made and the offending prominence chiselled away. The space left by the removal of bone should be packed with fat removed from any convenient part. This prevents the new callus exudate from giving



A B

FIG. 16.—Fracture of neck of femur. A, Fractured neck, showing position in adduction. B, Fractured neck of femur correctly reduced in abduction.

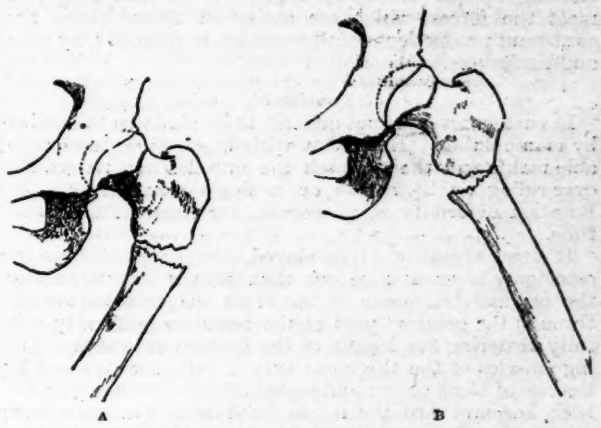
rise to trouble. In all operations where bone is removed and pseudarthrosis is desired I find the generous employment of fat most helpful, and in order to reduce the callus exudation the exposed cancellous bone should be lightly hammered.

Tibia.

In fracture of the tibia faulty alignment may be brought about by posterior bowing; the weight of the body may be thrown so far back that it passes at some distance behind the ankle, as shown in Fig. 15.

Fractures of the Femur.

Fractures of the neck of the femur, and all fractures about the small trochanter, should be treated in the



A B

FIG. 17.—Fracture of upper third of femur. A, Adduction deformity. B Abduction faulty, as the upper fragment does not participate.

abducted position to prevent deformity of the coxa vara type (Fig. 16 A and B). Stiffness of the hip associated with limitation of abduction, often accompanied by "osteo-arthritic" changes in the hip-joint, is the sequel of malunion in this region. To prevent this it is necessary to secure abduction and to maintain extension in the abducted position. If the fracture is of some weeks' standing and the area is still tender, the callus is certainly not consolidated; forcible abduction and extension in an abduction frame and rigid fixation in this position will then be followed by adaptation of the callus to the corrected position.

Fractures of the shaft of the femur, especially in the middle third, are frequently followed by gross forms of malunion, which will excellently serve to illustrate malunion in long bones.

The faults commonly found are:

1. *Shortening or overriding*, due to the fact that (*a*) reduction has been incomplete, the surgeon not having pulled until the fractured limb was at least as long as its fellow; (*b*) the method of fixation and extension used has been inefficient, and the muscles have caused overriding after the fracture was set; (*c*) the body weight has caused yielding of the callus after the patient has begun to walk.

2. *Angular deformity or erroneous alignment* is the result of inefficient methods of fixation, and more particularly of inefficient extension in the line of the limb. Erroneous alignment throws all the muscles of the part out of line, and, what is more important, puts the joints above and below out of their correct relations. A common fault in fractures at the junction of the lower and middle third is a posterior sagging (Fig. 18), which is best seen when the patient begins to walk. The body weight is thus thrown on the posterior part of the capsule. The deformity resembles a genu recurvatum.

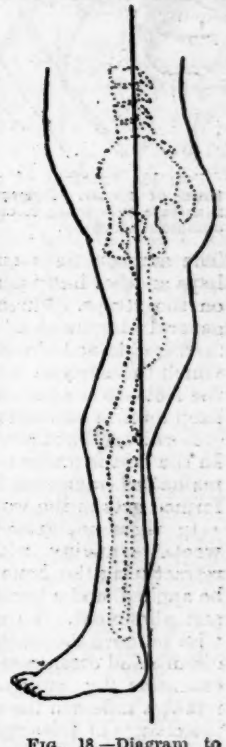


FIG. 18.—Diagram to illustrate posterior sagging in malunited fracture of femur in the middle third.

3. *Rotation deformity* is far too common, and can only be the result of careless and inefficient treatment.

Diagnosis.

In a case of malunion of the shaft of the femur in which one or more of these elements are present the whole region

of the fracture is tender, and is also the seat of pain for weeks and months after consolidation ought to be complete. This means that consolidation is far from complete, and that the callus is the seat of active change. Nature, in fact, is struggling with the problem of buttressing up the malunited fragments so that they can meet the forces which are acting in them, hence the exuberant production of callus, which is attended by pain and tenderness.

Treatment.

In such cases it is not difficult to break down the callus by manipulation. Extension with block pulley and suitable tackle will then stretch the muscles and reduce the over-riding by 2½ inches on a single occasion (Fig. 3). Rotation deformity is, of course, corrected at the same time.

If open operation is employed, the simplest form of osteotomy is an oblique one through the callus between the original fragments of the shaft. Once these are cut through the greatest part of the remaining difficulty is in fully restoring the length of the limb by extension. The big muscles of the thigh can only be fully overpowered by the use of block pulley and tackle (Fig. 3). When this has been accomplished the leg is fixed in a Thomas's knee splint, the tuber ischii rests on the padded ring, the extension straps are secured to the bottom of the splint. We are then sure that, whatever happens, the muscles cannot contract and cause further overriding. The only thing the muscles can do is to give up the struggle, and, as a matter of experience, this is what always happens.

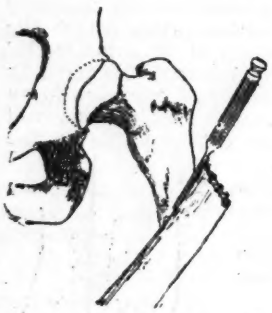


Fig. 19.—Fracture of upper third of femur. Diagram to illustrate osteotomy to correct common deformity.

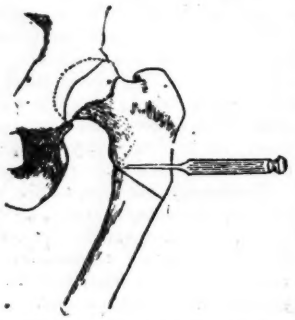


Fig. 20.—Fracture of upper third of femur. Diagram showing removal of wedge of bone to correct adduction.

The surgeon finds on his next visit that he can get perhaps another half inch of lengthening by further extension on the straps. Further, in a Thomas's knee splint good general alignment of the limb can easily be secured—in fact, is obtained almost automatically. The only points to which the surgeon has really to attend are the position of the foot—to see that there is no outward rotation—and to keep up firm extension.

Locally, splints are applied to control lateral movement. In the first instance this is not difficult. When resetting a malunited fracture it is not so easy, for the callus already formed gets in the way.

In these malunited fractures of the femur of some weeks' standing with considerable overlapping, after refracturing the bone by force the pulleys should always be applied and a great effort made to secure both length and alignment. To render this less difficult, it may be wise to move the fractured ends freely in all directions to disturb and disengage the fibrous and bony exudate. The extension by pulley should be maintained for several minutes to lessen the resiliency of structure and to reduce the chance of telescoping. The limb is then maintained in extension by a Thomas's splint, and on two or three subsequent occasions the pulleys are applied. By these simple means overlapping of three or four inches can be overcome, and an open operation is avoided. The "damming" method already described is applied to assist osteogenesis, aided when necessary by percussion.

Whatever operation may subsequently be needed, I cannot too strongly urge the necessity of preliminary pulley traction in order to secure a better length, and in this way prevent the sacrifice of bone.

In cases in which union in the vicious position is so complete and firm as to render operative procedures necessary, the procedure to be followed is influenced by the special type of union present. If it is a mere case of faulty alignment, with fair apposition, a small puncture and an osteotomy saw will do what is desired (Fig. 19). An *x*-ray photograph should be taken, and the section made through the angle. The case is then treated as one of simple fracture. If there is overlapping of the fragments, with no excessive callus, the saw is introduced between the fragments and the lateral fixation undone. Pulley extension will then diminish or obliterate the shortening, and the subsequent treatment will maintain both length and alignment. In other fractures higher up, with great thickening and lateral deflexion, a wedge is removed from the convex side of the bent bone, and a fracture at the point preferred may be produced some days later (Fig. 20). Extension and abduction of the limb should then be secured. In rarer instances, when unusual deformity and overlapping have occurred, it may be necessary to explore the fracture by a free exposure, to separate the fragments, to remove bone, and to plate.

Fig. 21.—Author's osteotomy saw with protected end.

Conclusion.

It may appear that in this paper I have dealt more with the treatment of fractures than with the treatment of malunited fractures, but a moment's reflection will satisfy us that there is only one problem before us—the restoration of function. Operation or manipulation to free the ends of the bones when union has occurred in a faulty position is only a preliminary step. In short, a malunited fracture cannot be cured by operation—all the operation can do is to reconstitute the fracture or make another fracture similar to the first.

If after this the subsequent treatment is not better than the treatment adopted in the first instance, an improvement in the result is not to be expected. This is probably why the statistics of late operations to correct malunion are often disappointing. The surgeon must not merely reduce the fracture, but must maintain the corrected alignment until consolidation of the bone is secured.

The fundamental principles applicable to simple fractures hold good in the case of compound fractures. The difficulties in carrying them out are obviously materially increased. Once, however, serious complications are past there will be ample time and opportunity to correct faulty alignment and to restore the best possible function to the fractured limb.

The fractures met with as a result of gunshot wounds are usually very serious, and I have witnessed with pride the splendid efforts made by the young surgeons in France to save these mangled limbs. Sometimes we hear criticisms at home, not always kindly, sometimes very unjust, because amputations are performed without flaps, and limbs still suppurating are not in the best position. If the whole truth were known, these mangled limbs and flapless amputations often represent surgical triumphs where every art and device has been concentrated upon the salvation of life and limb.

Surgeon-General Gorgas, with a party of medical men, is making an extended tour of South America to study methods of eradicating yellow fever. The expedition will visit Ecuador, Brazil, Colombia, and Venezuela. It is expected that the work will occupy four months.

In the *Deutsche medizinische Wochenschrift* for December 2nd, 1915, an account is given of negotiations conducted between the society of Frauenbildung-Frauenstudium of Mannheim on the one hand and the Medical Department of the German War Office on the other. To an inquiry why lady doctors were no longer required for military hospitals, the War Office replied that the lady doctors were discharged principally for general military disciplinary reasons, and that it was not to be assumed that this reflected on the medical capacity of the lady doctors. It was, however, the opinion of the War Office that the lady doctors were required rather for the civilian population (particularly for women and children) than for the army, which was already adequately supplied with medical aid.

OBSERVATIONS ON SPIROCHAETA EURYGYRATA, AS FOUND IN HUMAN FAECES.

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Introduction.

Recently attention has been directed to the Protozoa and and allied Protista occurring in the faeces of soldiers who had contracted various forms of dysentery or diarrhoea in Gallipoli or Flanders. A few papers recording the results of such observations have been published, but no mention has been made, so far as I am aware, of the occurrence of spirochaetes in the faeces of such patients, except by Fantham and Porter in 1915. Similar spirochaetes may occur in the motions of apparently healthy persons. Frequently the stools of dysenteric patients found to contain the organisms wer fluid and rather foul-smelling. Apparently the pathogenicity of such spirochaetes is slight, but they seem able to flourish and multiply in dysenteric intestines.

Material and Methods.

The material, as already indicated, was chiefly obtained from the stools of dysenteric patients during 1915–16. The stools of a few normal persons were also examined. When dealing with large numbers of stools in a somewhat limited time, as has been necessary on many occasions, the organisms were observed in fresh preparations, between coverslip and slide, with the aid of $\frac{1}{8}$ in. or $\frac{1}{12}$ in. objective and Huyghenian ocular 3. Twenty-three cases of single infection with spirochaetes were detected by this means alone in three months. However, the spirochaetes are seen to be more numerous in a preparation, and to occur more frequently in stools, if dark-ground illumination is used. Also, if stained smears of stools are made, many more infections will be found, perhaps even as high as 50 per cent. of the cases examined.

The organisms may be fixed wet in osmic vapour, hardened in absolute alcohol, and stained with gentian violet, iron-haematein, haematoxylin, thionin, and the various modifications of the Romanowsky stain. Bouin's fluid and corrosive acetic alcohol may also be used as fixatives, while dry smears may quite well be used for rapid diagnosis.

Movements.

The spirochaetes observed in faeces move quickly, and their bodies exhibit great flexibility. As I have previously pointed out (1907, 1908), the movements may be divided into two components—an undulatory flexion of the body, mainly for progression, and a corkscrew or helicoid movement of the body as a whole, due to its coiling. The number of waves along the body of a spirochaete varies according to the rate of progression of the organism, and is an index of its rate of motion, being also slightly influenced by its thickness. The coil of the helix of a rapidly moving spirochaete is much closer than that of a slowly moving organism. In other words, the body of a rapidly moving spirochaete is thrown into many small waves, while slowly moving forms are thrown into fewer, larger waves, as I have shown in my work on *S. bronchialis*. If a single living specimen be watched for a sufficiently long time under the microscope to allow of it changing its rate of motion, the change in the character of the coils can be observed. Reversal of direction of movement is common. Either end of a spirochaete can be forwardly directed, and the organism can easily return on its path. Corkscrew, boring movements also have been observed, and Catherine-wheel-like motions have been seen.

Agglomeration of the gut spirochaetes is common, tufts or tangles being produced. In my experience, such agglomerations or tomenta are more common in fluid stools than in semi-formed ones or those of normal consistency. The individual members of a cluster can easily separate from or rejoin the group.

On some occasions when shed epithelial cells from the intestinal wall have been present, spirochaetes have been seen to penetrate the cells. After a relatively short time they usually became quiescent there, and sometimes produced their resting coccoid bodies. Occasionally the spirochaetes might be seen to emerge again from the cell.

While usually the movements of the spirochaetes are very graceful and are undulatory and corkscrew in character, very rarely jerky or boomerang movements have been observed. These latter are perhaps more obvious in some of the shorter spirochaetes.

Morphology.

The spirochaetes of faeces are best termed *S. eurygyrata*, as will be shown in a subsequent section. They have markedly flexible, sinuous bodies, and, when observed in numbers, present morphological variation. The bodies of the organisms show a series of curves or waves, the exact number of which depends chiefly on the rate of motion prevailing at the time the spirochaetes are fixed or observed. The number of curves or waves may be as small as two or as great as nine. Bowed and coiled forms may also be seen. The ends of the organism vary somewhat, according to the stage of growth or the recentness of division. Usually they are tapering. (See text figure.) Some may be rather more rounded, while others have quite pointed ends. A few spirochaetes with one end more pointed than the other have also been seen, the appearance resulting from the extending attenuation at a recent division. Similar morphological variation in *S. balbianii* was described and explained by me in 1909. Internally, a diffuse nucleus consisting of chromatin rodlets or granules can be observed in well-stained specimens from stools, or in living forms examined by the aid of the paraboloid condenser. In the latter case, the chromatin granules appear as minute refractile spots. However, it is not always easy to see the granules.

The cytoplasm of the spirochaetes is almost homogeneous and is non-vacuolated. The presence of the chromatin granules or rodlets at intervals down the body gives rise in clear specimens to the alveolar or chambered appearance mentioned by some workers in connexion with the larger spirochaetes found in molluscs.

In some spirochaetes the periplast is seen to be laterally extended in the form of a very slight sinuous membrane or crest, which is only observed with great difficulty, as it is often contracted against the body.

By measuring a number of spirochaetes obtained from various patients on different days, the variation in length was found to be from 3 μ to 15 μ, and the breadth was about 0.25 μ or less. The breadth, however, is not easily determined, but some forms are clearly stouter than others. Multiplication by binary fission has been observed in the living organisms and forms undergoing similar division have been seen in stained preparations.

Spirochaeta eurygyrata, morphological variation. × 1,400.

The formation of coccoid bodies or granules in the gut spirochaetes has been studied in fresh preparations by both ordinary illumination and sometimes by the use of the paraboloid condenser. The cytoplasm concentrates around the chromatin rodlets and the concentrations gradually become oval. The coccoid bodies thus formed are set at liberty, either by ruptures in or disintegration of the parental sheath. The elongation of coccoid bodies, their assumption of the spirochaetiform facies and their emergence from groups of such bodies have all been observed in life.

The spirochaetes as such may disappear from the stools of a patient and then after some days reappear again, and thus there is variation in numbers from day to day. The more fluid the stool the greater is the number of spirochaetes present as a rule. During the period when the spirochaetes as such are absent from the stools, it is probable that they have produced granules or coccoid bodies. Owing to the large amount of finely divided débris present in the intestinal contents, it is not yet considered practicable to differentiate spirochaetal granules from other minute particles in stools. In my opinion, granules cannot be considered, at present, to be definitely spirochaetal in origin unless their formation from and subsequent elongation and development into spirochaetes have been observed in the living organisms.

A large number of drawings of the spirochaetes found in human stools have been prepared, and it is hoped that

it will be possible to publish them later, when the morphological variation exhibited by these organisms will be more fully shown than is possible in the text figure.

Earlier Observations.

There are a few vague references in the literature to spirochaetes, or spirilla, as they were often called, in human faeces. Thus, H. Kowalski (1893, 1894) recorded the presence of spirilla in cholera motions examined by him. Apparently no illustrations or dimensions of the organisms were published, and at first they were not named. The number of curves, "about one, two, or three, seldom four, five, or many," is noted. Kowalski's first observations, made on eleven cases, are recorded in an incomplete form in the report of a meeting of a medical society in Vienna in December, 1893. During the discussion thereon Paltauf stated that Escherich in 1884 had seen spirochaetes in normal human faeces. Escherich himself in 1894 referred to his previous work in 1884–86, and stated that he had found spirilla in diarrhoeic stools of babies and adults and in cats. He compared them with dental spirochaetes, but found them to be shorter. Abel (1894) and Aufrecht (1894) also recorded the finding of spirochaetes in the faeces of a few cholera patients, the latter worker comparing them with blood spirochaetes. Rechtsamer (1894) mentioned the finding of spirilla in the dejecta of cholera patients in Caucasia.

Lustig and de Giaxa, writing in 1894, refer to their earlier work in 1886 on the stools of four cholera cases in Trieste, in which the occurrence of spirilla was noted. In their earlier paper (1886) these authors give drawings of a few spirilla, but neither state the dimensions of the organisms nor name them. On examining their illustrations I find that the spirilla measure up to 13 μ. As a result of a discussion of the work of Lustig and de Giaxa, Kowalski (1894) named his organisms *Spirillum hachaizae* or *S. hachaizicum*. However, as no dimensions and no detailed differential characters were given, either by Kowalski or the other earlier workers—most of whom called the organisms spirilla or spirochaetes indifferently, though the parasites are not stated to have had flagella, characteristic of spirilla—it is very doubtful whether Kowalski's names are valid.

"Spirillar" or spirochaetal dysentery has been briefly recorded by Le Dantec (1903). The patient, who came under observation in the neighbourhood of Bordeaux, had been known to the author for some time, and had been at Tonkin eighteen months before, when in the French Colonial Medical Service. It was stated that the patient developed dysentery in Bordeaux. Spirochaetes were found to be abundant in the mucus of the stools. Some of the organisms showed three curves, and were 6 μ to 14 μ long. Coiled-up and bowed forms were also seen. Some spirochaetes were observed to enter and emerge from intestinal cells.

Werner (1909) found spirochaetes in his own stools while apparently in good health, though he had suffered from diarrhoea when in German South-West Africa in 1905. A few other cases are also mentioned by him, among them the occurrence of spirochaetes in a case of sprue. Werner separated two species of spirochaetes, which he considered to be distinct. He named these *Spirochaeta eurygyrata*, "a wide wound form," varying in length from 4.6 μ to 7.3 μ; and *S. stenogyrata*, "a narrow wound form," varying in length from 3.5 μ to 6.1 μ. Only six indistinct microphotographs illustrate the paper, and they hardly justify Werner's statements.

Werner differentiated partly on the character of the "windings." As I (1915) have previously pointed out, the number of windings or curves is not of specific value, but is chiefly an indication of the rate of movement. Further, the processes of growth and division will easily explain the so-called differences in morphology and size between Werner's species. Morphological and biological variations appear to have been overlooked in the desire for the creation of new species.

In 1914 J. G. and D. Thomson recorded the presence of spirochaetes in the stools of healthy individuals, of patients suffering from rheumatoid arthritis, of a case of profound anaemia, and of a case of amoebic dysentery. They also found what they considered to be Treponemata in human stools. Macfie (1915) found spirochaetes in the stools of a monkey suffering from amoebic dysentery in West Africa, and in those of diarrhoeic patients in Accra.

Nomenclature.

From the foregoing remarks it will be seen that the nomenclature of the spirochaetes found in human stools is in a very confused state, owing to lack of precision and detail in the incomplete descriptions published. As already indicated, the species *S. hachaizae* is insufficiently defined, and its name appears to be invalid.

It is probable that the earlier authors, and, indeed, all those mentioned in this paper, were dealing with the same spirochaete, which exhibited morphological variation due to the processes of growth and division. The first name proposed by Werner—namely, *S. eurygyrata*—will then be valid. It is therefore necessary to amend the definition of the organism as follows: *Spirochaeta eurygyrata* has tapering ends, measures up to 15 μ long, and is about 0.25 μ broad. It contains a diffuse nucleus consisting of chromatinic granules. The number of coils or waves is variable, depending on the rate of movement and thickness of the organism.

Conclusions.

Spirochaeta eurygyrata, Werner emend. Fantham, may occur in the stools of dysenteric and apparently healthy persons. The organism, which has pointed ends, measures from 3 μ to 15 μ in length by about 0.25 μ in breadth.

The so-called spirilla, mentioned by some of the earlier workers as occurring occasionally in cholera motions, are included under the name *Spirochaeta eurygyrata*.

The number of coils in a spirochaete is not a specific character but is variable, and is primarily an index of its rate of motion, being also partly dependent on the thickness of the organism.

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PERFORATING AND PENETRATING WOUNDS OF THE CHEST WITH SEVERE HAEMORRHAGE:

A SUGGESTION FOR TREATMENT.

BY

A. DON, F.R.C.S., MAJOR R.A.M.C.(T.).

I HAVE been impressed with the impotency of treatment for severe haemorrhage in these cases, and have recently had an opportunity of trying a method which I have not seen advocated elsewhere, and I offer it for consideration and trial by surgeons near the front. The severer cases

almost all die of haemorrhage within the first few hours, and so far there has been little success in attempts to check this mortality. The movements of respiration with its suction force, combined with the elasticity of the lung itself, tend rather to a continuance of haemorrhage than to natural arrest. Plugging the wounds in the chest wall, unless fortunately the bleeding vessel is an intercostal, and is by chance compressed against a rib, seems to do more harm than good, to hasten rather than retard the end. The method is extensively used, but if it is to arrest the bleeding from the lung itself, which is oftenest the cause of death, it must allow complete rest to the lung by collapse, and before this can take place the pleural cavity has to be full of blood. Slow collapse of the lung would not be nearly so effective in arresting severe haemorrhage as sudden collapse, and a pleural cavity filled with blood spells a bloodless and often moribund patient.

If one considers the mechanism and physics of respiration one finds that with each inspiration there is a lifting of the chest wall and depression of the diaphragm, which tends to produce a vacuum in the pleural space by a sucker-like effect. A wound of either pleura will have this suction applied to it, and every child knows how little effort is required to suck blood from a pinprick in the finger. The suction power of the mouth is feeble compared with that of the chest in the pleural space owing to the intervening column of air in the lungs, and the elastic lungs themselves.

The suction in the pleural cavity is exerted strongly from the commencement of the act of inspiration to that of expiration, and more feebly, though of the same kind, during the whole expiration. A bleeding point thus has a suction pump applied to its open rent, and a clot is prevented from forming, for even at the end of expiration the lung occupies a much greater space than it would occupy if the chest wall had an opening in it and the lung were completely collapsed. The same process of suction takes place also throughout the lung tissue, and there is added the elasticity of the lung itself, which pulls apart and keeps open any rent. Unless a very large vessel be torn there is not apt to be so much bleeding into the trachea as into the pleural cavity, though it may equally be continuous for days, for there is not so great suction force to the trachea side, and it is not so uniformly exerted during the whole respiratory act. The suction is positive during inspiration, the air pressure being negative and almost equal during expiration. But there is the cough to consider.

To overcome both the suction and the elastic forces and to allow the lung a complete rest till haemorrhage has been arrested, I thought of making a temporary opening into the pleural cavity, allowing the lung to contract quickly, and, if necessary, washing out the blood clot. In most of the cases of chest wounds, especially from shells, the haemothorax has later (reports from base hospitals) become septic and death from empyema has supervened. This infection of the blood clot is almost certain to happen, for it may be, and usually is, infected by the missile, or it may be, and sometimes is, infected from a septic pneumonia arising in the injured lung. There is then the difficulty of diagnosing this empyema. Fluid and dullness are already present from the haemothorax, and the rise of temperature may not be sudden, and may be due to the septic pneumonia. One could, of course, put in a needle daily, but the risk of infection from repeated punctures is as great as from the single stab of operation. Besides—and this is not unimportant—one hesitates to disturb and pain a serious chest case daily. It is against the rest treatment at present in vogue, as well as against one's feelings of sympathetic nursing.

The risk, then, of causing by operation an infection which would not otherwise occur is infinitesimal, and on all grounds my suggestion, wisely used in selected severe cases, seems a sound one, and I have convinced most of my colleagues with whom I have discussed the subject of its feasibility and utility. Very severe haemorrhage could be treated in advanced stations of field ambulances, less severe ones more comfortably in the small hospitals of the field ambulance and others, a diminishing number, in the casualty clearing stations.

In the only case in which I have done the operation great relief was experienced in breathing; there was a marked diminution of pain, and, though haemorrhage could not be said to have been severe, it was still going on, and stopped quickly after the operation.

The operation may be done under a general or a local anaesthetic, and in any of the usual sites for empyema, preferably the mid-axillary line. Percussion localizes the haemothorax, and a stab is made with a scalpel through the intercostal space, close to the lower rib. The scalpel goes right into the pleural space. Even if the point of the knife wounds the lung, which is unlikely in most cases and impossible where there is much effusion, the consequence is negligible. The outer covering of one of the army tracheotomy tubes is slipped easily, owing to its central grove, one half along each side of the blade of the knife, and is pushed right home. The knife is then withdrawn and the centre piece of the tracheotomy tube put in. If air has not entered during the previous manipulations it will do so now, with a hissing noise, and the blood will be coughed out. The haemothorax may be aspirated through a soft catheter placed inside the tracheotomy tube, as was done in my case, but this would not be necessary in cases treated earlier, when clotting would not have taken place. The tube is now turned so that the inside end points up, and is fixed by straps and plaster or a suture to the chest wall. A pad of sterile gauze and wool completes the dressing. Mr. Lawrie, R.A.M.C., suggested that a trocar and cannula, such as is supplied in the pannier of the field ambulances and casualty clearing stations, would be sufficient to give relief and allow the patient to be transferred before more haemorrhage would take place. This is worth considering for advanced dressing station treatment. The cannula would, of course, not be left in.

When a tracheotomy tube is put in the whole operation does not occupy a minute, and the tube is removed after twenty-four or forty-eight hours, according to the amount of blood escaping. The wound closes immediately aseptically. Our patient went to the base on the third day quite fit.

The advantages of this treatment are—

1. The lung collapses quickly, and any wound in it immediately closes.

2. The lung gets complete rest for a time and will be better able to combat infection later, as it will contain very little blood effused into its tissues.

3. The suction force of respiration is immediately removed from the rents of the interthoracic vessels, and clotting and natural arrest is allowed to take place.

4. Plugging may be done for haemorrhage from the chest wall with a certainty of arresting it and of doing no harm, and there will be less movement—a comparative rest—on the collapsed side.

A SUCTION OR VACUUM BOUGIE FOR THE TREATMENT OF CHRONIC GONORRHOEA.

BY

CAPTAIN A. CAMBELL, R.A.M.C.(T.).

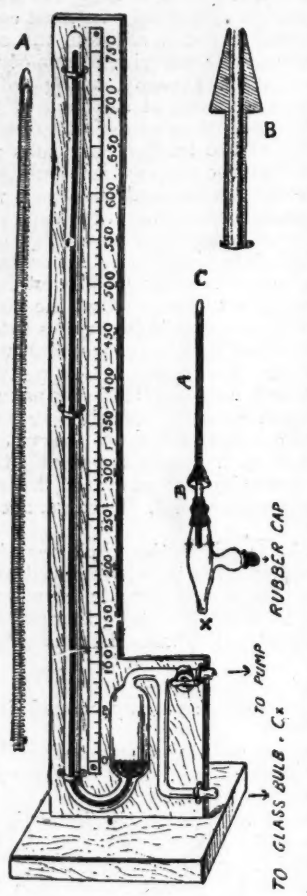
IN chronic gonorrhoeal urethritis there are two conditions chiefly responsible for the failure, in many cases, of the usual methods of treatment. The one, is the gonococci are wholly or partially sealed up in the lacunae and glands, owing to the infiltration and thickening which has taken place round the walls. The other is, the great alteration in the vascularity of the mucosa by the infiltration resulting from the invasion of the gonococcus in the subepithelial tissue.

At this stage of the disease irrigations, injections, and other local applications are practically of no value, as they are unable to penetrate the glandular elements to wash out the lurking gonococci. Mechanical dilatation will not open the ducts or glands with infiltrated and thickened walls. The application of heat to the urethral mucosa by bougies fails to achieve its two objects, which are to kill the gonococci by the direct action of heat, and to induce an artificial hyperaemia, because the mucosa will not tolerate without injury the necessary temperature.

With the idea of inducing an effective hyperaemia in the subepithelial tissue, and promoting absorption, and also of emptying the lacunae and glands, I have designed a suction or vacuum bougie. I have used it in many

cases, and the results, I believe, justify further trial. It has been made for me by Messrs. Down Brothers. It consists of two parts—one, the bougie proper, A; and the other a tube or sheath-cone, B.

The bougie is a flexible tube made of wire wound spirally, the turns being in close contact. One end of the tube is closed by a metal tip, which is hollowed out for about ¼ in. from the end joining the wire. The wire is of such tension that although the bougie can be bent into a complete circle it readily returns to a straight line. The total length is 10 in., that of the tip being ½ in. The sheath-cone is a metal tube about 2½ in. long, enlarged at one end into a cone; the sketch shows the correct proportions. When the bougie is in the urethra the sheath-cone is slipped along it as far as the meatus, which it plugs automatically, preventing air from entering the urethra.



The manometer is a glass tube bent to form two limbs, and containing mercury. When at rest the column in the long limb registers the ordinary atmospheric pressure like a barometer. To the short limb is attached a glass T piece, the horizontal portion of which is fitted with a glass tap connected by tubing to an exhaust pump. The vertical portion descends to the base of the manometer, where it is bent at a right angle. To it is attached india-rubber tubing, which leads to the glass and bulb C. The bulb is intended to catch urine, anaesthetic, etc., without removing the bougie. The glass tube is joined up to the sheath-cone by a short length of india-rubber tubing, so that the ends are in contact, the bore of the glass tube being large enough to admit the bougie. This is necessary in cases where the length of the bougie projecting from the meatus is more than 2 in., and also when it is used in the anterior urethra only. The india-rubber tubing used is ½ in. thick with an internal diameter of about $\frac{3}{32}$ in.

Method of Employment.

The patient lies on a couch or table. If he has a small meatus, or has not previously had a bougie in the urethra, I syringe into the urethra a local anaesthetic (alypin 2 per cent.), and keep it in for five minutes. A No. 1 Lister's sound is now passed into the bougie as a stylet, the wire tube accommodating itself to the shape of the sound, the end of which fits in the hollow tip. I then lubricate the whole surface liberally with carbolized vaseline. It can now be passed into the urethra in the usual manner, just stopping short of the bladder. After withdrawing the sound, the sheath cone is fitted on to the bougie and pushed up to the meatus. The tap of the manometer being open, a few strokes of the pump will lower the atmospheric pressure in the urethra and suck the cone well into the meatus.

When the required pressure is reached by further use of the pump, the tap is closed. If all the joints are airtight, the mercury will only rise about 5 to 10 mm. in fifteen minutes. The pressure in the urethra is raised by disconnecting the pump and opening the tap slightly to admit more air.

I have obtained the best results with a height of about 100 to 200 mm. of mercury, maintained for fifteen to twenty minutes. If too low a pressure is used, it may cause bleeding. The bougie is withdrawn after disconnecting the pump and opening the manometer tap, and admitting air very slowly into the urethra. When the mercury is at rest, the sheath-cone is taken off, and the bougie withdrawn very carefully after giving it one or two twists. The patient then irrigates with 1 in 8,000 potassium permanganate, or protargol 1 in 4,000.

There is no pain or discomfort; if no anaesthetic is used the patient may be conscious of a slight sucking or drawing sensation.

The bougies are made in two sizes corresponding to No. 12 and No. 9 English. If the urethra will admit it the larger size produces a better result than the smaller.

On the bougie after removal may be seen small plugs of material which are found to consist of pus and epithelial cells, and very frequently gonococci. In some cases they are extremely numerous along the whole length of the instrument. They are caught in between the turns, and are more easily seen if the bougie is plunged into boiling water for a second. I regard them as a sign of successful action.

They have not always been obtained in cases which I expected would produce them. I believe now that it was due to the turns becoming clogged with vaseline, exudate, etc., and preventing suction.

It is essential that the bougie be kept scrupulously clean. Boiling is not sufficient. It must be soaked in petrol or syringed out, and occasionally a linen thread must be run between the turns.

To give one instance of its effect: a patient who contracted gonorrhoea three months previously had, on examination, only a slight muco-purulent discharge. No gonococci were found in the discharge or urine. After one application of the bougie, numerous plugs were obtained in which were found gonococci. The discharge cleared up in a few days afterwards.

I hope shortly to be able to publish some further results.

I am much indebted to the friend who made the sketch for me, and to Lieutenant-Colonel L. W. Harrison, D.S.O., for affording me every facility for experiment with the bougies.

The manometer in the sketch was made by the Holborn Surgical Instrument Company.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TRENCH FOOT.

THE importance of this condition leads me to record the fact that in all the cases which have come under my observation in a small relief hospital here the men confessed to being the subjects of sweating feet.

Other factors are doubtless involved, but it is easy to conceive that the accumulation of this sweat, under conditions of warfare, would soon swarm with bacteria and become highly irritating to the skin and subcutaneous tissues. It would be interesting to observe whether "trench foot" selects the subjects of hyperidrosis.

To prevent or mitigate this localized hyperidrosis I have found the following treatment useful, in addition to the daily foot bath and change of socks:

1. Painting the feet with a solution of formalin.
2. A dusting powder composed of French chalk and zinc oxide, rubbed down with a few drops of formaldehyde and applied to the feet and inside of the socks.
3. A generous diet containing plenty of nitrogen.

Portsmouth. J. G. BLACKMAN.

NEPHRITIS AND ADRENALIN POISONING.

SEEING the proximity of the adrenal gland to the kidney, and therefore the likelihood of this organ sharing the congestion of the kidney in nephritis, and bearing in mind that adrenalin can produce arterio sclerosis, arterial degenerations, and vascular hypertension, I would venture to make the tentative suggestion that hypertension and

arterial disease in nephritis are due to adrenalin autopoisoning. As far as I am concerned, this suggestion is original.

Sydney, Australia. G. S. THOMPSON, F.R.C.S.Australia.

British Medical Association.

CLINICAL AND SCIENTIFIC PROCEEDINGS.

STAFFORDSHIRE BRANCH.

AT the third general meeting of the session, held at Wolverhampton on April 27th, the President, Dr. F. M. ROWLAND, was in the chair.

Splenectomy for Banti's Disease.

Mr. CHOLMELEY showed two cases of splenectomy for Banti's disease:

CASE I.—Boy, aged 6 years; ailing for three years; very pale and languid, getting thinner; has pain in epigastrium, cough, and occasional haematuria. The spleen was fairly large, also the liver; the boy was very pale, skin rather yellow, slight icteric tinge of the conjunctiva. On January 19th a blood count was taken: red cells, 1,850,000; white, 6,500. On January 21st the spleen was removed; it was not exceptionally large; the liver was very much enlarged. The next day the colour of the skin had changed; there was a healthy pink tinge in the lips, ears, and cheeks. On February 7th the blood count was: red cells, 2,700,000; white, 11,000. The boy was discharged from the hospital on February 14th very much improved. The improvement had not been maintained; he still looked very pale and weak. Blood count on March 9th showed: red cells, 2,425,000; white, 15,600; haemaglobin 70 per cent.

CASE II.—Boy, aged 12 years. Illness started suddenly after a fright a week before he was seen. The boy was very pale; no icterus, no haematuria; complained of pain in abdomen, back, and head. Spleen very large. Blood count, February 14th: Red cells, 1,330,000; white, 5,000; haemoglobin, 35 per cent. The spleen was removed on March 4th; it weighed 2¼ lb. A blood count taken on March 15th showed red cells, 2,950,000; white, 10,000; haemoglobin, 70 per cent. The boy was discharged on March 19th, very much improved. The improvement in this case was much more marked and better maintained, the blood count on April 26th being: red, 2,800,000; white, 53,000; haemoglobin, 60 per cent. The great difference in the after progress of the two cases was due most likely to the difference in the length of previous illness.

Insurance Act Developments and Problems.

After a brief reference to the various medical interests served by the British Medical Association and of the accusations levelled at it by discontented groups of practitioners, Dr. MACTIER took up the subject of the recent developments in National Insurance, and also gave a few examples of problems which had come under his notice. Dealing first with the subject of certification, he said that the profession in many cases had either failed to understand Memorandum 211/I.C. or had not read it; the approved societies were also to blame in that their agents, especially those of the collecting societies, had not been instructed in the rules, and the fact that they still insisted on certificates being given on certain days of the week led to trouble, and proved annoying to those practitioners who were conscientiously carrying out the rules. The question of certificates for patients at hospitals was next dealt with, and it was pointed out that any officer, not necessarily a medical officer, could give a certificate to the effect that so-and-so was an in-patient of the institution. But with regard to out-patients, the view was expressed that the practitioner on whose list the patient was was bound to furnish the necessary certificates, whereas there was no obligation to do so on the hospital staff. Practitioners were warned that certificates should be given with care and dated on the day on which the patient was examined, since failure to comply with this rule had given rise to more complaints for investigation by the Medical Service Subcommittee than any other cause. In discussing the drug tariff, he gave a short description of the work of the West Midland Pricing Bureau at Birmingham, which is responsible for the pricing of the prescriptions payable by eighteen Insurance Committees and employs a staff of some twenty persons. The insertion without notice in the 1916 agreements of the clause as to the use of "Rep. mist." and the use of indelible ink for certificates was mentioned; Dr. Mactier said the Bureau looked on "Rep. mist." with great favour, provided the original script was attached and it did not go outside the calendar month. He concluded by stating a few problems which had come before him as Chairman of the Wolverhampton Insurance Committee, and agreed with an expression of opinion by the meeting that knowledge which was obtained as referee should not be used in the capacity of chairman when considering the question of adequate service being given by panel practitioners.

Coolidge Tube.

Dr. J. A. CODD described and demonstrated the "Coolidge tube," which, he said, he had had for about ten months, and found that for purposes of treatment it was far superior to the best type of ordinary tube. It was a machine of precision. If a result with a given series of factors was once obtained, it was possible to reproduce it by repeating the factors, which were completely under control. The main facts of construction and manipulation were then described. The factors of the working equation were: (1) Distance of diseased area from target, (2) hardness or penetration of tube, (3) current through heating circuit of cathode, (4) coil current through tube, (5) ohmic resistance in primary current, (6) filter, (7) time, (8) dosage shown by colouring pastille or other form of measurement. If (1) to (7) were reproduced, (8) would always be the same. A series of observations showing this was handed round. He pointed out that in (5) he mentioned "ohmic resistance in primary" instead of "current in primary," as the latter was no guide, because as less and less ohmic resistance was included the hardness of the tube increased and the resultant inductance in the primary increased so much as almost to neutralize the decreased ohmic resistance. Thus, in throwing off the resistance from the ninth stud to the fifteenth, decreasing the ohmic resistance from 8·6 ohms to zero, the primary current only increased from 6 to 6.5 ampères. So in factor (5) he used the expression "stud *n*," the ohmic resistance of which was known, and could be recorded in all publications, so as to compare with the work of other workers. His recent practice had been the following:—For deep structures: (1) 15 cm., (2) 19 cm spark-gap, (3) 4.2 ampères in heating circuit, (4) sixth stud (15.5 ohms), (5) 5 milliampères, (6) 3 mm. Al, (7) 10 min.; this gave 14 Hampson at half distance, covered with filter. For superficial lesions, 0.2 mm. Al was used, and for ringworm no filter, and four minutes gave 14 Hampson, which was all that was needed for epilation, and no more should be given. Probably less was enough. The use of the Coolidge was very comforting in ringworm cases, as there was no dread of sudden variation in the tube and too rapid colouring of the pastille, as had happened in other tubes. By using the same dosage as in ordinary tungsten-target tubes, even though he had increased the filter from 2 to 3 mm. Al, he had had the misfortune to burn three of his cases. He did not think it safe to give more than 14 Hampson a week, and probably less frequently than this would be found to be necessary. For radiography he had not found his tube to be of much service, though for the screening of opaque meals it was useful. At first he found it self-rectifying, but recently had had to use valve tubes.

Diaphragmatic Hernia.

Mr. CHOLMELEY showed the left half of the diaphragm from an infant three hours old who died suddenly. The infant was a very healthy-looking baby and was left quite well by the midwife about two hours after birth. It died quite suddenly an hour later. At the *post-mortem* examination nearly all the small intestine, the spleen, and nearly the whole of the stomach were found in the left chest, having escaped from the abdomen through a congenital defect in the left half of the diaphragm. The opening was in the back of the diaphragm, oval in shape 2 in. in its long diameter.

ACCORDING to statistics recently published by Dr. Shibasahuro Kitasato, the death-rate from tuberculosis for the whole of Japan is 17 per 10,000. It is considerably higher in certain occupations, notably among school teachers. Among factory girls, of whom there are some 500,000 in the country, there is an average of 9,000 deaths a year, of which 6,300 are caused by tuberculosis. Most of the girls live in overcrowded and ill-ventilated dormitories. The prevalence of tuberculosis in Japan is ascribed to the number of houses in low areas into which the sunlight rarely penetrates and the traditional custom of tightly closing all windows during the night.

Reports of Societies.

THE RATIONALE AND PRACTICE OF CHEMIOTHERAPY.

THE Dermatological Section of the Royal Society of Medicine on June 1st continued the discussion on Mr. J. E. R. McDonagh's communication,[1] which had been adjourned, special attention being paid at this meeting to the clinical side. Mr. MCDONAGH in his opening remarks extended and in part modified his previous statements. He pointed out that ferrivine was adapted for treating the acute stages of syphilis, and intramine for the chronic cases; these drugs surpassed salvarsan in general, but while in some cases of early syphilis ferrivine was better than salvarsan, in others it was less efficient. The behaviour of the early lesions in cases treated with ferrivine differed from what was observed with salvarsan; after ferrivine the chancre became swollen and did not heal so quickly, but there was an absence of induration, and lymphangitis and the swelling of the inguinal glands receded rapidly. It appeared that congenital syphilitic keratitis did not invariably respond to intramine. He emphasized his opinion that, although salvarsan removed the symptoms of syphilis, it did not cure the disease. The disadvantages attendant on the administration of ferrivine owing to the shock produced by the drug had now been overcome.

Dr. PRINGLE said that he had observed the action of ferrivine in two dozen cases treated in Mr. McDonagh's out-patient clinic at the Lock Hospital. Measuring the result of the remedy by its action on the primary sore, he regarded the effects as more striking and more immediate than after arsenical preparations. The subsidence of the induration of the chancre and of the lymphangitis and lymphadenitis was remarkably rapid. Intramine had been tested by himself in secondary and tertiary cases; and while it was not possible to form such a positive estimate of its effects, he, on the whole, endorsed its adjuvant action when administered in conjunction with arsenical products or ferrivine. In early cutaneous syphilis it accelerated the disappearance of hard nodular and follicular lesions. Intramine should not be given at too short an interval after an arsenical compound. In one case which he had observed, an injection of intramine administered within twenty-four hours after a moderate dose of galyl had apparently induced acute symptoms of galyl poisoning. Late superficial cutaneous syphilides often disappeared, at least temporarily, after an injection of intramine, but it was yet too early and the number of cases too limited to warrant conclusions regarding the permanence of the action. A serious disadvantage of intramine was the severe pain which it produced, although not invariably, and which incapacitated the patients for a week; in most cases they would not be persuaded to receive a further dose. Dr. Pringle commented on Mr. McDonagh's attitude in rejecting the Wassermann reaction. Personally, he had found it a valuable aid in diagnosis in doubtful cases and also as a guide in treatment.

Lieutenant-Colonel HARRISON described the effects of intramine and ferrivine as observed along with Mr. C. H. Mills. Ferrivine, as obtained from the manufacturers, was tested in three cases; two of these received intramine in addition. They were ordinary cases of early syphilis. In spite of the repeated doses of ferrivine, the cases behaved just as if no specific treatment of any kind had been received; spirochaetes continued to be found in the secondary lesions, and in one patient a mucous patch containing spirochaetes developed on the tonsil during the treatment with ferrivine. The immediate beneficial effect of a single dose of salvarsan administered later showed that a refractory infection was not being dealt with. As regards the side-effects of ferrivine, Colonel Harrison referred to the extremely serious nature of the symptoms; great collapse and respiratory distress, etc., occurred rapidly after the injection of the ordinary dose, and one case appeared on the point of death. The local effects of intramuscular injections of intramine, when administered by the most perfect technique, and without any addition of urea or quinine, were "undiluted torture"; in eight cases which had received intramine the symptoms had been practically uniform, with local swelling and tenderness, which persisted for weeks. In one case an abscess formed which had now been discharging for twelve weeks; in others there was evidently necrosis, although no abscess had formed yet. Colonel Harrison regarded the use of intramine as impracticable on account of its local effects; as to its therapeutic action, he recalled the fact that tertiary lesions might be markedly benefited by a great variety of measures which could not be termed specific, such as hot applications.

Dr. SEQUEIRA was of opinion from his own experience that nothing approaching the therapeutic effect of salvarsan and its analogues was produced by ferrivine and intramine. In the secondary stage of syphilis these drugs could not be compared with the arsenical products. In a case in which he had administered a dose of not more than 1 gram of ferrivine obtained from the makers, toxic symptoms followed practically immediately, and the man appeared near to death. Vomiting occurred before there was time to take the needle out of the vein; Dr Sequeira regarded ferrivine as the most rapid emetic he had yet seen. Intramine produced very severe pain and five to six weeks afterwards massive tender swellings were present just like those following the intramuscular administration of salvarsan.

Dr. SHILLITOE quoted results obtained with ferrivine and intramine at the Female Lock Hospital. Four out of nine cases showed very marked improvement; two reacted severely to ferrivine; intramine caused severe pain in six. He considered that ferrivine and intramine did exert an antisyphilitic action, which in some instances was as rapid as after salvarsan.

Dr. H. G. ADAMSON had tested intramine in lupus. Eight cases had received sixteen injections in all; the first two cases showed remarkable improvement with healing of the ulceration; but it was much too early yet to give an opinion on the effects.

Mr. C. H. MILLS reported further details of the cases treated with Colonel Harrison, and confirmed the points already mentioned. A case of indurated chancre of two months' duration, with mucous patches, received a full dose of ferrivine, which caused an immediate severe reaction; in spite of repeated treatment spirochaetes were still present in the mucous patch more than one week after the commencement of ferrivine administration. Then a dose of salvarsan was given, and eighteen hours later no spirochaetes could be found. The reaction following the intravenous injection of ferrivine was more severe than any observed during nine thousand injections of other preparations. With regard to the patients exhibited by Mr. McDonagh, Mr. Mills pointed out that one who had been under treatment for two months exhibited mucous patches and that in two cases intramine had become encysted.

Sir MALCOLM MORRIS urged on Mr. McDonagh, with regard to these new products, the same policy of watchful waiting which Mr. McDonagh himself had advocated in the case of salvarsan. Dr. C. H. BROWNING commented on the conflicting character of the evidence derived from the observation of cases treated by Mr. McDonagh when compared with the results of others who had themselves tested ferrivine. Dr. STOWERS, the President of the section, also emphasized the necessity for postponement of conclusions.

In reply, Mr. MCDONAGH complained that his researches had neither been proved nor disproved by his critics. He admitted that intramine and ferrivine were capable of improvement, and stated that improvements had already been effected. He doubted whether the chemical aid necessary for the perfecting of his work could be obtained in this country.

[1] BRITISH MEDICAL JOURNAL, April 22nd, p. 591.

INJURIES OF PERIPHERAL NERVES.

AT the meeting of the Section of Surgery of the Royal Academy of Medicine in Ireland on April 7th Major F. C. PURSER read a paper on injuries to peripheral nerves. He showed first what might be expected in a nerve which was wholly divided and then sutured under the most favourable conditions. Wounds caused in war seldom had so good an ending. They might be divided roughly into two classes—a numerically smaller class of total loss of function and a larger class where function was not wholly lost. A case in either class, but especially in the latter

class, might be associated with pain or with hyperæsthesia. In the first class, with total loss of power and of sensation, the question to make sure of first was that the lesion was organic, of a nerve or nerves, and not functional. Having decided this, the exact outline of sensory loss and extent of motor loss should be recorded. If there were no improvement in six weeks or two months, exploration of the nerve was justified. Partial loss of function varied in severity of its symptoms from a loss almost total to a mere subjective sense of abnormality. Motor loss, as far as it could be compared with sensory loss, was often disproportionately great. Improvement in the condition of a case might, he said, best be gauged by an exact examination of sensory changes. Cases were described illustrating this point. Either total or partial loss of function might be due to anatomical section of nerve or to the inclusion of the nerve in scar or other compressing tissue. Recovery following secondary suture was far less satisfactory than that following the release of the nerve from scar tissue. Operation was called for when the disablement was very great and was not lessening under proper relaxation and massage treatment and when pain was severe. Often enough it made matters worse, and should not be undertaken without very careful repeated consideration of the case.

Mr. W. S. HAUGHTON followed with a paper on bullet injuries of nerves and other treatment. He dealt chiefly with the mechanical effects of high-velocity bullets striking the tissues, and described the different types of lesion that resulted in the nerves in the neighbourhood of wounds.

Reviews.

THE PATHOLOGY OF TUMOURS.

DR. E. H. KETTLE is to be congratulated on having produced a very useful volume on *The Pathology of Tumours*.[1] His aim has been to follow the generally accepted teaching, and this he has set forth clearly and succinctly, omitting all highly controversial theoretical matter and weighing carefully in the light of his own practical experience the *pros* and *cons* of those subjects on which there is still no general agreement. It is in the chapters on the endotheliomata and the hypernephromata, especially the latter, that the author's own views become more manifest. He does not side with those who regard the endotheliomata as tumours of general and frequent occurrence. The section on the hypernephromata is perhaps the best in the book. From a careful consideration of the histological features of these growths the author is forced to the conclusion that many of the so-called hypernephromata are really renal in origin.

The book is divided into three parts. The first deals with the general biology, the second with the general pathology, and the third with the special pathology of tumours. In the section on dissemination the author states (p. 22) that "an operation for the cure of cancer can only be successful when the whole of the growth is removed; if a single metastasis is overlooked, the proceedings are doomed to failure." Without any desire to appear captious, this statement seems unduly gloomy. It must have fallen to the author's lot to have met with cases in which a malignant nodule has disappeared spontaneously. Furthermore, on page 25 is the statement that the perilymphatic reaction may eventually "choke and kill" the cancer cells spreading along one of the larger lymphatic vessels. Provided that extension of growth from the distal end of such a plug does not occur—and this is an occurrence which, though common, is by no means inevitable—the nodule may die out. It must also be accepted that not every metastasis "takes" owing to unsuitability of environment.

It is refreshing to find a grave word of caution against the practice of the "rapid diagnosis" of tumours by means of frozen sections prepared whilst the patient is still under the anæsthetic, and the author's views will probably find acceptance with many pathologists who have had practical experience of this kind of work.

The one disappointing feature about the book is that it follows so rigidly the generally accepted teaching. The research worker and the advanced student will probably not find in it new stimuli. On the other hand, the busy general practitioner and the final-year student have been given just what they want to make them familiar with this most interesting and important branch of pathology.

A very special word of praise must be given to the illustrations. Of the 126 figures about 100 are of microscopical sections, and have been specially drawn for the book. They are admirably chosen and beautifully reproduced. The book is of convenient size and excellently printed.

AN OXFORD WAR PRIMER.

THE small pocket guide on *Injuries of the Eyes, Nose, Throat, and Ears*[2] is one of the Oxford War Primers of medicine and surgery published under the general editorship of Lieutenant-Colonel D'ARCY POWER. Dr. MAITLAND RAMSAY, in his introductory remarks to the section dealing with injuries of the eyes, writes: "In modern warfare eye injuries are of very frequent occurrence, but, whatever their cause . . . it may be taken that they differ merely in degree, and not in kind, from those met with in ordinary civil life. The principles that underlie treatment are, therefore, the same in both instances." After reading the book this remark appears to be applicable to the other sections. Apart from a series of illustrative cases appended to the section of injuries of the nose and throat there is little in the book that might not have been published had there been no great European war.

Out of 156 pages of text only ten are devoted to the injuries of the ears. The large number of men, not only from the trenches at the front but also from the training camps and barracks at home, suffering from injuries and diseases of the ears, show that the subject is of more importance than could have been anticipated, and deserving of more attention than the space accorded to it in this primer allows. In support of this opinion we may quote from Mr. WEST'S concise contribution. Speaking of deafness ascribed to war causes he writes: "Meatal obstructions by ceruminous plugs are not uncommon. It seems likely that some of these are truly 'explosion deafnesses' owing to the plug having been driven home by the sudden compression-wave. Such plugging of the meatus seems to give complete immunity from damage to the cochlea, and the case is cured by the syringe. These cases have, however, repeatedly been sent home from France for want of a simple diagnosis." The primer contains much teaching in a condensed form. To those who have grown out of touch with the special departments of practice with which it deals and find themselves on active service it will be a useful guide.

THE ORDER OF ST. JOHN OF JERUSALEM.

THE story of the Knights Hospitaller, the most ancient order of chivalry, and its revival in England, was told in the BRITISH MEDICAL JOURNAL of October 24th and 31st, 1914. The head quarters of the reconstituted body are in the old priory of the order at Clerkenwell, a description of which was written some years ago by the Rev. T. W. Wood and Mr. H. W. FINCHAM. More recent discoveries having made that *Guide* out of date, Mr. Fincham has embodied the results of fresh investigations in an interesting volume which has recently appeared.[3] As the sphere of more important duties of the Order was in the Mediterranean, the Priory of England, he thinks, must have been used mainly for the princely hospitality which it dispensed, for the administration of its great estates, and for recruiting. He gives a full account of the old buildings as far as they can now be traced. Little now remains, but Stow and other old writers have said that they were stately and beautiful. The old priory suffered many vicissitudes. After the dissolution of the monasteries it was preserved as long as Henry VIII reigned, though degraded to base

[1] *The Pathology of Tumours*. By E. H. Kettle, M.D., B.S.Lond. London: H. K. Lewis and Co., Ltd. 1916. (Demy 8vo, pp. 232; 126 figures. 10s. 6d. net.)

[2] *Injuries of the Eyes, Nose, Throat, and Ears*. By A. M. Ramsay, M.D., F.R.F.P.S.Glasg., Major R.A.M.C.(T.F.); J. Dundas Grant, M.D., F.R.C.S.Eng., late Major R.A.M.C. (Post Office Volunteers); H. Lawson Whale, M.D.Camb., F.R.C.S.Eng., Captain R.A.M.C.(T.F.); and C. E. West, F.R.C.S.Eng., Captain R.A.M.C.(T.F.). Oxford War Primers. London: H. Frowde; Hodder and Stoughton. 1915. (Fcap. 8vo, pp. 160; 11 figures. 2s. 6d. net.)

[3] *The Order of the Hospital of St. John of Jerusalem, and its Grand Priory of England*. By H. W. Fincham, Member of the Order of St. John. London: W. H. and L. Collingridge. (Cr. 4to, pp. 88, illustrated. 6s. net.)

uses, being made a storehouse for "the king's toils and tents for hunting." In the reign of Edward VI the church, with the great bell tower, "a most curious piece of workmanship, graven, gilt, and enamelled, to the great beautifying of the city," says Stow, was blown up with gunpowder. In Queen Elizabeth's time the priory was the head quarters of the drama, and from there Edmund Tylney, the Master of the Revels, licensed thirty of Shakespeare's plays. At the beginning of the eighteenth century the chapel had become a Presbyterian meeting house; then it was a private chapel for the use of the neighbourhood, and in 1723 it was reconsecrated as the parish church of St. John of Clerkenwell. In 1731 the Gate House was inhabited by Edward Cave, who there printed and issued the *Gentleman's Magazine*. There Samuel Johnson hid his shabbiness behind a screen when there was company at dinner. In 1845 the building had become so ruinous that the metropolitan building authorities ordered its thorough repair or demolition. Mr. W. P. Griffith, an architect resident in St. John's, raised a public subscription, and eventually restored the building to a safe condition. In 1874 the freehold of the Gate House was bought by Sir Edmund Lechmere, who later transferred it to the Order. Mr. Fincham gives a detailed description of St. John's Gate and of the church and crypt, with the heraldic shields and other decorations and the historic memorials which they contain. The crypt was the scene of the performances of the "Cock Lane Ghost," which in 1772 attracted royalty, nobility, members of Parliament, and leaders of fashion to hear the noises made by "Scratching Fanny."

Mr. Fincham has little to say about the hospital work of the knights in their early days. Although the Order became within no long time of its foundation more a fighting than a nursing body, it seems to have retained all through its history some traces of its original character. The revived English Order gives itself wholly to works of charity, and through its ambulance department the St. John Ambulance Association and the Brigade, which is an offshoot, it has done and is doing work of incalculable value in the present war. The account of that work given by Mr. W. R. Edwards, secretary of the Order, is a proof of the splendid enthusiasm of humanity that animates the hospitallers of to-day.

Mr. Fincham's book should be read by all interested in the fascinating history of the soldier monks who through many centuries ministered to the sick and fought the infidel at Jerusalem, Acre, Cyprus, Rhodes, and Malta, by all students of the development of philanthropy, and by all lovers of old London. It is admirably and abundantly illustrated, and the plans of the church and other buildings enable one to follow the work of restoration to the present time, when, though much of the material glory has departed, the original spirit breathes in the workers who have taken up the heritage of the knights of old.

PATHOLOGICAL ENTOMOLOGY.

THE last five years have witnessed the publication of a comparatively large number of books on medical entomology; none of them are entirely satisfactory, partly because they are apt to be out of date shortly after publication, but much more because the subject is very composite, bearing as it does on clinical medicine, public health, the protozoa, the bacteria, and systematic and biological entomology. Probably we must recognize that the successful textbook on medical entomology will be the work of a number of authors each dealing with a section of the subject. Applied entomology is as yet very inadequately recognized by the medical profession. One wonders, for instance, how many students have ever seen the scabies mite, or have such a knowledge of the life-history of fleas as would enable them to rid a house of that pest. It is not, of course, suggested that the ordinary medical man should do more than make himself acquainted with the dozen insect parasites of man which are met with in this country, but we hope that in the future the medical entomologists will be recruited as often from the hospitals as from the schools of zoology.

Professor HERMS'S *Medical and Veterinary Entomology*[4] is written primarily for the American student, and gives a very good account of the parasitic insects, especially those which spread disease among men and animals in America. The author shows much wisdom in omitting as far as possible systematic tables for separating the scores of known species of tick, or mosquito, or flea. Only a few of these species are of great pathogenic importance, and no one should attempt to identify an Anopheline, for instance, without a considerable training in the systematics of that group. Most parasitologies and handbooks of medical entomology do not recognize this, and we fear that the result will soon be seen in the publication of a large crop of mistaken identifications, based on the use of the "keys" of these books. The author's wisdom in saying so little about the internal anatomy of the more important parasites may be questioned, but he may have felt that Patton and Cragg's *Textbook of Medical Entomology* dealt with this aspect of the subject so fully that he was justified in omitting it from his smaller work. A great deal of modern work in tropical medicine turns on the dissection of parasitic arthropoda; we refer, of course, to such work as Bacot's on the *Bacillus pestis* in the gut of the flea, Patton's search for *Leishmania* in the bed-bug, Fantham and Porter's investigations upon *Herpetomonas* in insects, or the fruitless search of many workers for *Piroplasma* in any or every organ of the infective tick. A good knowledge of the internal anatomy of pathogenic insects and of the readiest means of dissecting them is necessary to a comprehension of this work.

After some introductory chapters, Professor Herms describes the insects with which he is concerned, in systematic sequence. A great number of species of lice, both true lice and biting lice, infect man and the domestic animals; the majority of these are figured, most of them from photographs. Some of the photographs should never have been published; no good purpose is served, for instance, by figuring a *Trichodectes* without visible legs or abdominal segments; some of the photographs are excellent, as are also the line drawings. The Diptera (fleas and true flies) occupy more than half the book. The author has very wisely confined himself to the more important members of this vast order. The account of the house-fly and the anti-fly campaign is particularly good, as, indeed, it should be in a book published in America. Professor Herms has not provided a separate bibliography, but gives his references in footnotes. He ought to have found room for some reference to Dr. Graham-Smith's invaluable volume on *Non-biting Flies*.

The ticks and mites, though they are not actually insects, are conveniently included in any book on applied entomology. Ticks are of the greatest economic importance in America, and indeed in many other parts of the world, for they are responsible for the transmission of the *Piroplasma* group of protozoa, the organisms of "red-water" and kindred disorders in the domestic ungulates.

Professor Herms is not, apparently, a medical man, but he is by no means one of those entomologists who believe in the insect transmission of "every ailment, from a gumboil to a dislocated spine." He adopts the view, which we believe to be correct, that poliomyelitis is not normally transmitted by *Stomoxys*; on the other hand, he follows Sambon in the matter of the transmission of pellagra by *Simulium*.

The index is good, the figures are numerous, and some of them excellent. The volume is extremely heavy.

[4] *Medical and Veterinary Entomology: A Textbook for Use in Schools and Colleges as well as a Handbook for the Use of Physicians, Veterinarians and Public Health Officials.* By W. B. Herms. New York: The Macmillan Co. 1915. (Roy. 8vo, pp. 405; 228 figures. 17s. net.)

NOTES ON BOOKS.

THE seventh edition of GOULD'S *Pocket Medical Dictionary*[5] has recently appeared, and shows an advance on its predecessors. Thus, for example, the fourth edition, dated 1900, contained definitions of some 30,000 words, as compared with the 35,000 in the seventh edition, which also contains many more lists and tables than the edition of 1900. At the end of the book there is a posological table of the commoner drugs, and a veterinary dose table. The print and paper are satisfactory, and there is no doubt that the book contains a vast amount of information.

Mr. J. S. KELLETT SMITH has written a short and optimistic account of his experience with the Bergonié

[5] *A Pocket Medical Dictionary.* By G. M. Gould, A.M., M.D. Seventh edition, revised. London: H. K. Lewis and Co., Ltd. 1915. (Pott 8vo, pp. 1003. 5s. net.)

electrical treatment of obesity and what he calls "obese heart."[6] Details are supplied of the way in which the interrupted induced current is applied, and a few pages are given to the association of obesity with diminished functional activity of the thyroid gland. The author prescribes for patients receiving the electrical treatment a diet containing little fat or carbohydrate. He adds that obese people should reduce the total consumption of fluids to a low level, particularly at meals. A number of weight charts reproduced in the book show that satisfactory reductions of weight may be obtained by the methods advocated.

[6] *The Cure of Obesity and Obese Heart.* By J. S. Kellett Smith, F.R.C.S.Eng. London: J. and A. Churchill. 1916. (Cr. 8vo, pp. 101; 12 figures. 3s. 6d. net.)

MEDICAL AND SURGICAL APPLIANCES.

Silver-wire Drainage Tube.

CAPTAIN VELLACOTT, R.A.M.C., has devised a silver-wire drainage tube which resembles a test tube in shape, for which the following advantages are claimed:

1. The tube allows air or oxygen to reach the tissues more freely than other tubes.
2. Irrigating lotions also reach the tissues in the same manner.
3. Discharges pass freely into the tube along its whole length.
4. The tube is non-compressible and unbreakable. It is especially useful in the septic wounds of war.

The tubes are made by Messrs. Down Bros. in various sizes from 2 inches to 8 inches in length.

SUPPLY OF PETROL.

THE Petrol Control Committee of the Board of Trade has issued a memorandum in the course of which it is stated that a subcommittee, consisting of representatives of the chief distributing organizations, has undertaken to regulate the supply of petrol according to the classification shown below.

Users of motor spirit have been placed in three classes:

Class "A" includes cars used by medical practitioners, veterinary surgeons, cars used by recognized organizations for the transfer of sick and wounded, for the transport of munitions of war, by the police and local government authorities, by lord lieutenants and high sheriffs, or for any service certified by a Government department.

Class "B" includes requirements for agricultural machinery, industrial processes, and the conveyance of goods, for air craft, for motor cabs, for motor cars used by commercial travellers, for boats and omnibuses used for other than pleasure services, for railway purposes, and for stationary engines, including lighting sets.

Class "C" comprises all other requirements, including private motor cars and motor cycles in ordinary use.

It is not anticipated that there need be any curtailment at present of reasonable demands in Classes "A" and "B."

The same memorandum calls attention to the regulations limiting the amount of motor spirits which may be stored without a licence, and states that it is the intention of the Committee shortly to take a census of all motor vehicles and of petrol consumption and requirements.

It is stated on what seems to be good authority that the military services now need nearly, if not quite, as much petrol as was consumed in the United Kingdom for all purposes before the war. At the same time the amount used by commercial vehicles is believed to have increased. If these statements be correct the Petrol Committee's expectation that it will be possible to keep up the supply for Classes "A" and "B" would seem to be, in part at least, founded on the reply made to a question in the House of Commons on May 31st by the Parliamentary Secretary to the Board of Trade, to the effect that a recommendation had been received from the Committee with regard to the release of certain tank steamers to facilitate the importation of additional supplies. It is said that at the present time, owing to lack of adequate storage on shore, tank steamers are kept in port, where they are gradually emptied to meet the demand.

The Automobile Association and Motor Union has produced evidence to the Petrol Control Committee on two points. One is that, from a special inquiry addressed to their members, it would appear that 58 per cent. of mileage is entirely for business or professional work, and 16 per cent. for voluntary work; the remaining 26 per cent. is for shopping, station work, and otherwise in the private interests of the owner; it is added that a recent census of traffic on main roads showed that the number of pleasure cars on the road was a negligible quantity. The other point is with regard to the ten million gallons of duty-free petrol delivered last year for industrial purposes. It is suggested that while petrol is a necessity for motor vehicles, it may not be indispensable in certain industries where a substitute or a heavier grade of spirit could be used. It is suggested that the Petrol Committee should obtain an independent technical opinion on the utilization of substitutes for industrial purposes, and it is pointed out that every gallon of petrol so released for private business would produce 6d. for the Treasury. The hope is also expressed that if the restriction of supply is imperative in the national interest, the Petrol Committee will take steps to protect private users against unreasonable increases in price.

The Medical Secretary of the British Medical Association has received a letter from the Petrol Control Committee, dated June 2nd, stating that the Committee has made arrangements with the principal petrol supply companies whereby the requirements of medical practitioners are to be met in priority to the requirements of the majority of other users, and that it is hoped that the full operation of this arrangement will remove the difficulties which have been experienced by medical men.

The following communication has been received by the Local Government Board (Ireland) from the Major-General in Charge of Administration, Irish Command, with regard to the regulations now in force as to the sale of motor spirit in Ireland:

DUBLIN CITY.—All restrictions regarding the sale of motor spirit have been removed.

OTHER PLACES IN IRELAND.—There are no restrictions excepting that persons can only obtain petrol through the local police authority; therefore, any difficulties experienced by would-be purchasers should be referred by them to the Inspector-General, Royal Irish Constabulary, as there is no limit to quantities which vendors may remove by authority from Dublin.

BIRTHDAY HONOURS.

THE list of honours published in the *London Gazette* in connexion with the King's birthday include the following civil members of the medical profession in addition to naval and military members whose names are published at another page:

Dr. Addison, M.P., Parliamentary Secretary to the Ministry of Munitions, has been created a privy councillor.

The honour of knighthood has been conferred upon Mr. Francis Mark Farmer, dental surgeon to the London Hospital; Dr. M. Armand Ruffer, C.M.G., president of the International Quarantine Board, Egypt; and Professor Nestor Tirard, secretary of the Pharmaceutical Committee of the General Medical Council.

Dr. Frederick Montizambert, I.S.O., Director-General of Public Health, Canada, receives the distinction of C.M.G.

Dr. Noel Bardswell, medical superintendent, King Edward VII Sanatorium, Midhurst, and Dr. Frederick S. Hewett, Surgeon Apothecary to His Majesty the King, have been appointed members of the fourth class of the Royal Victorian Order.

The Kaisar-i-Hind gold medal is bestowed upon Mr. H. M. Newton, F.R.C.S., Church of Scotland Mission, Jalalpur Jatan; Dr. M. G. Robertson, chairman of the Municipal Committee of Ajmer; and the Rev. Peter Cullen, M D., Brigade Surgeon, I.M.S. (retired).

AT Whitsuntide a new naval ambulance train, lately completed at the L. and N.W. Railway Works to the specification of the Admiralty, will be on view at Addison Road Railway Station, near Olympia. Cots can be shipped aboard it in such a manner that the seamen will be transferred undisturbed in them from the ship to the hospital. A charge of one shilling will be made for admission, and the proceeds will be handed over to the Dreadnought Hospital for Seamen, Greenwich.

British Medical Journal.

SATURDAY, JUNE 10TH, 1916.

UNDER FORTY-ONE AND UNENROLLED.

IT is of the utmost importance that medical men under the age of 41 should understand at once the position in which they are placed by the Military Service Act (Session 2), which became law on May 25th last. The Regulations made under it by the Order in Council of June 1st are printed in full in the SUPPLEMENT.

Every male British subject, married or single, who has not attained the age of 41 before June 24th next, will (with certain exceptions, which do not concern the medical profession) be deemed, as from that date, "to have been enlisted in the regular forces for general service with the colours or in the reserve for the period of the war, and to have been forthwith transferred to the reserve."

Application for exemption from the provisions of the Acts may be made by a medical man to the Local Tribunals, but such application is only necessary in the case of the unenrolled man. The enrolled man, if called up, need only produce his certificate of enrolment and refer the recruiting authorities to Army Council Instruction 485. The applications of medical men will be referred to the Professional Committees appointed under the Regulations. Application for exemption must be made to the Local Tribunal before the "appointed date," that is, before June 24th, 1916. The Professional Committees are the Central Medical War Committee for England and Wales, the Scottish Medical Service Emergency Committee for Scotland, and, in certain special cases, the Committee of Reference appointed by the Royal College of Physicians and the Royal College of Surgeons. A Central Professional Committee has power to recommend exemption—absolute, conditional, or temporary—in cases in which, after considering the evidence, it thinks a certificate of exemption ought to be granted, and the recommendation of the Professional Committee concerned will be binding on the Local Tribunal.

In England and Wales medical men of military age may be divided into those who enrol with the Central Medical War Committee and those who do not enrol. It is with the latter class that we are concerned at present.

The medical man who is under the age of 41 on June 24th next, who is unenrolled and does not intend to enrol with the Central Medical War Committee before that date, may do one of two things. Either he may wait until his class is called up by the military authorities, in which case he will be taken for general service, and if found suitable is not unlikely to be offered a commission in the R.A.M.C., or he may apply to a Local Tribunal for exemption provided he does so before June 24th. If he waits to be called up, he will be taken for the duration of the war just like any other citizen, and his pay will be at the ordinary rate for the kind of service into which he is taken. If he is given a commission his pay will be the ordinary pay of a lieutenant in the R.A.M.C.

Presumably, however, the unenrolled man will usually apply for exemption. In this case his application will be forwarded by the Local Tribunal to the Central Professional Committee; if he is attached to a metropolitan hospital, the application will be transmitted to the Committee of Reference. The recommendation made by these Committees will be returned to the Local Tribunal and will be binding on the Tribunal. If the application is not granted, the man's position will be the same as that described above in the case of him who decides to "wait and see"; if exemption is granted it will mean that the Professional Committee considers that the man's services are urgently required by the community in which he practises, or that his circumstances are such as to lead to excessive hardship to him or his dependants. It must be remembered that the exemption may in any case be absolute, conditional, or temporary.

Thus the man who is unenrolled on June 24th puts himself, the Local Tribunal, and the Professional Committees to much trouble; he runs the risk of being taken for combatant service; if taken, he will serve for the duration of the war; and, if given a commission in the R.A.M.C., he will be paid at a lower rate than the present temporary lieutenant. Whereas the enrolled man will have his case decided by the same Committee with just the same amount of care and consideration; he will have the same right of appearing before the Committee; if selected for service, his term of service may be for one year only unless the need for a subsequent term arises, and his scale of pay will be the same as that of the temporary lieutenant under the voluntary system. Under these conditions, it would hardly seem worth while for any medical man of military age to remain unenrolled after June 24th next.

SCOTTISH AND ENGLISH SKULLS.

THE more we dig into the physical characters of the English, Scottish, Welsh, and Irish peoples, the more do anthropologists become convinced that all four nationalities are compounded out of exactly the same racial stocks of mankind. No more convincing proof of the truth of this statement has come to hand than the lengthy, elaborate, and somewhat severely mathematical monograph recently published by Dr. Matthew Young, Senior Demonstrator of Anatomy in the University of Glasgow.[1]

For the first time Dr. Young has given us an accurate picture of the head-form of the million people who live on the banks of the Clyde. He had an ample supply of material, some 700 skulls, derived from a disused Glasgow graveyard. We have knowledge of only one other extensive series of British skulls, that found in a disused cemetery in the East End of London, which was investigated and described by Dr. W. R. Macdonell some twelve years ago.[2] A Glasgow man does not expect to discover that the Whitechapel man is his cousin, and probably no one was more surprised than the Scottish demonstrator of anatomy to discover that his "Scottish skulls presented an exceedingly close resemblance in their general form to the series of skulls described by Macdonell and known as the Whitechapel English crania, which the latter regards as the typical skull of the Londoner of 200 years ago." We have only to compare

[1] A Contribution to the Study of the Scottish Skull, *Trans. Roy. Soc. Edin.* 1916. Vol. li, Part ii, pp. 347-544; 3 plates, with numerous tables of statistics. (Price 14s. 6d.)
[2] *Biometrika*, 1904, vol. iii, p. 191.

the chief measurements to see how close the resemblance is. The mean length of the Glasgow man's skull is 187.5 mm.; the Whitechapel skull is 1.5 mm. longer; the Glasgow width, 139.5 mm.; the Whitechapel, 1.1 mm. more; the proportion of width to length (cephalic index) is exactly the same in both—namely, 74.3; the height of the Glasgow skull, 132.7 mm.; the Whitechapel has slightly a lower roof—namely, 0.7 mm. less. We are rather surprised to find the brain capacity rather smaller in the Glasgow than in the Whitechapel man—1,459.4 c.cm. in the first, against 1,476 c.cm. in the second. On the other hand, Dr. Young credits the Glasgow woman with a larger brain than her Whitechapel sister. There is reason to believe that Dr. Young has not done the brain capacity of his townsmen full justice. In the 700 skulls he found 405 which were probably male and only 100 which were probably female. We expect an equal representation of the two sexes in a burial ground. It is very likely that female skulls were included in the large male group, and seeing that, on the average, the brain capacity is about 170 c.cm. less in the woman than in the man, the inclusion of female skulls in the male group would lower the male average. When we take this circumstance into account, we may safely predict that the Glasgow-Whitechapel men have been endowed with almost the same size of brain.

The casual critic might seek to explain the resemblance between the head-form of the Glasgow and Whitechapel people on the grounds that both are living under the same conditions of town life, and that such conditions will tend to produce the same head-form. Dr. Young has convincing evidence to show that head-form is permanent under the most diverse conditions of British life. In the long barrows of England, and in the corresponding graves in Scotland, occur the remains of the people who lived in Britain some 4,000 to 5,000 years ago. In dimensions and in shape the Glasgow and Whitechapel men reproduce the head-form of these ancient British people to a surprising degree. Neolithic blood runs strong in modern people living on the banks of the Thames and Clyde. Sometime ago Professor Keith called attention in these pages to the close resemblance between the skull of Robert Burns and those of the Neolithic people which Professor Bryce had unearthed in the cairns of Arran.

But what of the Anglo-Saxon invasion and the coming of the Norseman? Dr. Young has grasped that problem too. The Scandinavian and Anglo-Saxon skulls are the same as the long barrow skull—the same type as the modern British skull; those invaders brought no new skull form to England; they were of the same stock as the ancient British. Unhappily, so we think, Dr. Young applies to those Scandinavian and West German people the name "Teutonic." In its modern usage "Teutonic" means German, and the vast majority of modern Germans have a totally different head-form from the ancient and modern British, and the modern German is emphatically brachycephalic.

We are surprised to find that there was such a small proportion of round-headed or brachycephalic people in Dr. Young's Glasgow series. There is evidence that about 1700 years B.C. round-headed invaders, with a head-form of much the modern German type, began to land along our eastern coasts, from Caithness in the north to the Isle of Wight in the south. Their remains are found in the round barrows or in short cists in all of our eastern counties; they invaded Wales, and they reached Ireland in very considerable numbers. The late Sir William Turner collected skulls from all parts of Scotland; out of a collection of 174 skulls, 35 (20 per cent.) were emphatically brachycephalic. There is very little trace of this brachycephalic element in either the Glasgow or the Whitechapel series of skulls.

The essential fact remains that, as regards race, the people of Whitechapel and of Glasgow are the same. There is every reason to suppose that when Dr. Young's colleagues in Cork, Dublin, Belfast, Cardiff, Bristol, Birmingham, Manchester, Liverpool, Newcastle, Edinburgh, and Aberdeen do for those cities what he has done for Glasgow the result will be approximately the same—a demonstration that we British are, as regards physical characters, a homogeneous race. We hope, however, that when these new investigations are undertaken the anatomist will remember he must be rather more than a mathematician. Dr. Young has treated the Glasgow skull as if it were a problem in Euclid. The skull is part of an elaborate machine; to be studied profitably it has to be viewed, not only with the eye of the mathematician, but also with that of the engineer, and, above all, by that of the medical man.

THE TRADE EDUCATION OF MAIMED SOLDIERS.

THE *Journal de Médecine de Bordeaux* in its May number gives an account of the School of Re-education and the various organizations for the assistance of mutilated soldiers established at Bordeaux. The work was started a year ago by the Mayor; the city gave 40,000 francs, the general council of the Gironde 20,000 francs, and the Chamber of Commerce 10,000 francs, and the State will ultimately take upon itself all the working expenses. The school is established in the extensive buildings of what was formerly the Grand Séminaire in the Rue du Hamel. There the maimed soldiers are lodged, and workshops have been arranged where masters teach them the trades they have selected. An orthopaedic hospital will be established in another building. The work is under the direction of foremen, some of whom are themselves maimed. The results are very satisfactory, but experience has shown that maimed men are seldom able to get employment in large workshops, where their inferiority in output shows up too acutely in comparison with that of their whole-limbed mates. A proposal has been made that, in view of the increasing number to be provided for, an attempt should be made to establish workshops in which only maimed men are employed. It has also been found necessary to classify the men, and for this purpose two other organizations have been created at Bordeaux, which supplement the work of the municipal school. One of these, the "Guide du Réformé," particularly occupies itself with men who have lost their lower limbs; they are placed with employers, and allowances of varying amount are given them during their apprenticeship. Allowances are also granted to some pensioners of the school, to be applied to the support of their families during their re-education. When the apprenticeship is finished the man seeks to settle in his native place or elsewhere; if he has no resources, as is often the case, L'oeuvre de l'Assistance aux mutilés pauvres, which has its head quarters in Paris, advances him the money necessary to buy tools and material up to £20. The Bordeaux school is chiefly intended for those who have lost the upper limb or the use of it. To determine the class of work for which each man is fitted a laboratory has been established in which, on admission, all men are examined; by an adaptation of Marey's graphic method of registration on smoked cylinders the value of the stumps or paralysed limbs in regard to work is determined. By clinical examination

it is seen whether they are suited for work requiring strength or something less arduous, such as plastic arts or bookbinding. To this end pneumograms and cardiograms are taken in a state of rest and after work. By other experiments the number of calories used during work is ascertained and the degree of fatigue measured. By comparing their own tracings with those of the foremen the men can see the object aimed at. Progress is tested by weekly examinations. The director of the laboratory, Dr. Gourdon, sums up the functions of the laboratory as follows: A clinical study of the mutilated man from the working point of view, medical and scientific supervision during re-education, exact control of the work, minute research as to the best conditions of this work, adaptation of the prosthetic apparatus to the work the man is to do, and rational progressive training with the object of better utilization of stumps of paralysed limbs. The school is thus an institution for the scientific study of re-education and for the training of masters and instructors who will in turn train other maimed men and organize workshops.

THE MAKING AND FITTING OF ARTIFICIAL LIMBS.

LIKE the British soldier, the French soldier who has lost a limb in the war has a right to an artificial substitute. A central medical committee comprising some orthopaedic surgeons appointed some time ago by the Under Secretary of State to supervise the work, has settled on an appropriate type of apparatus for various amputations, and samples have been supplied to the manufacturers of each region, who are required strictly to adhere to the approved type in each instance. The materials to be used in the manufacture of an artificial limb must be sent to the central prosthetic laboratory at the Conservatoire des Arts et Métiers, where, under the direction of Professor Amar, they are thoroughly tested. When the apparatus is finished it is sent to the regional orthopaedic centre and is accepted definitively only when the members of a local committee have decided that it fits the man perfectly and fulfils the required conditions. The choice of apparatus is not hampered by questions of expense but is based entirely on the highest attainable standard of usefulness to the wounded men in view of the calling which they will pursue. Thus to an agricultural labourer there will be given an articulated stump solid enough to allow him to do rough work on the land, whilst to a worker in an office an artificial leg will be supplied. In not a few instances skilful and ingenious artificers have been found among the wounded themselves, but to complete the organization of the service specialist craftsmen have been brought back from the armies. In the Paris region the arrangements are now in full working order, and every Thursday 150 to 200 specimens of apparatus are examined at the hospital of the Maison Blanche by the competent committee and sent out to those for whom they are intended. In this country the arrangements differ in detail but work out to the same end; that is to say, a sailor or soldier who has lost an arm or a leg is supplied from public funds with an artificial limb made and adjusted under the supervision of surgeons specially skilled in such matters. As our readers are aware, the Queen Mary Auxiliary Hospital at Roehampton, which now has over 300 beds, has been carrying on this work for a year. Early this year a movement to establish a hospital on similar lines for Scottish soldiers was set on foot mainly through the exertions of Sir William Macewen, and the Committee is now in possession of a house and extensive grounds in the neighbourhood of Glasgow. At Brighton 500 beds have been provided in the Pavilion Military Hospital, where men who after amputation suffer from some condition of the stump which does not allow the proper fitting of an artificial limb can be treated by operation or otherwise. When ready to be fitted the man will be transferred to the hospital at Roehampton. The British and the Scottish hospitals are independent of each other, but both have the approval and support of the Directors-General of the Royal Naval and of the Army Medical Services. It will be remembered that last March the War Office issued a *Memorandum on Amputations and Amputation Stumps*, founded on the experience gained at Roehampton, for the guidance of surgeons of military hospitals abroad and at home in the selection of the site of amputation, when choice is possible, and in the fashioning of stumps. It was reviewed in our columns on April 8th, p. 534.

THE RATIONALE AND PRACTICE OF CHEMIOTHERAPY.

THE addition of an efficient drug to the pharmacopoeia will always be an achievement of importance, and lately Mr. J. E. R. McDonagh claims to have discovered two such remedies in intramine and ferrivine.[1] From the formulae which are given the compounds appear to be orthodiaminophenyldisulphide and the iron salt of sulphanilic acid respectively, both well-defined substances long known to the chemist. Mr. McDonagh claims that these compounds surpass salvarsan in value in the treatment of syphilis and have the merit of being non-toxic. Ferrivine is employed in the acute stages and intramine in chronic cases, but the best results appear to follow when they are used in conjunction. Such refractory conditions as degenerative encephalitis and interstitial keratitis are described as yielding to intramine; but from remarks made by Mr. McDonagh at the adjourned discussion in the Dermatological Section of the Royal Society of Medicine reported this week it seems that this effect is not always attained in keratitis, and the opinion has been expressed that, while in some cases of early syphilis ferrivine acts better than salvarsan, in others it is less efficient. Such is the broad outline of the practice. The *rationale* is based upon highly-involved considerations regarding oxidation and reduction processes in the living body and the effects of the size of lipoid-globulin molecules and of their stereochemical configuration on adsorption and so on. The majority of experienced clinicians do not profess to be expert biochemists, and the executive of the section wisely invited the participation of scientific workers of acknowledged repute in those fields from which Mr. McDonagh has gathered his inspirations. In the consideration of the theoretical side of the subject the comments of Professor Bayliss must carry great weight, and from them—and he is not alone in his views—it seems clear that Mr. McDonagh's speculations are for the most part without experimental basis, and in certain instances mutually contradictory or actually contrary to observed facts, as when he attributes the phenomena of adsorption to active oxygen. Though Mr. McDonagh's arguments do not seem to commend themselves to authorities well versed in the nature of the problems under consideration, a discovery of practical value will atone for much inconclusive theory; it remains, therefore, to inquire what clinical evidence has been adduced. Independent observation has confirmed the occurrence of rapid improvement in the primary sore and related lymphangitis and lymphadenitis in a series of cases treated with ferrivine under Mr. McDonagh's own care, and very marked improvement was reported in about half of a series of cases treated with the remedies at the Female Lock Hospital. On the other hand, Lieutenant-Colonel Harrison and Mr. Mills, who themselves treated cases with ferrivine obtained from the makers, found that no clinical improvement followed, either when the drug was used by itself or in conjunction with intramine; the specific spirochaete also persisted in the secondary lesions for over a week after the commencement of treatment, although a single dose of salvarsan subsequently banished the parasites in eighteen hours. Dr. Sequeira's experience with ferrivine likewise led him to the conclusion

[1] BRITISH MEDICAL JOURNAL, April 22nd, p. 591.

that its effect on the secondary stage was not comparable with that of salvarsan. These speakers insisted on the very severe shock which may follow even moderate doses of ferrivine. As regards intramine, no independent evidence concerning its effect in interstitial keratitis and general paralysis appears to have been offered so far; there is practical unanimity, however, that intramuscular injections cause such severe pain as would prohibit its use in many cases, and frequently it appears to be very imperfectly absorbed. Having regard to the observed immediate effects in some cases it seems hazardous to speak of ferrivine and intramine as non-toxic. Mr. McDonagh, in closing the discussion, admitted that his drugs were capable of improvement, and claimed that he had already overcome certain disadvantages. It is evident, however, that an extended probationary period will be required for them. In the meantime we would once again utter a caution against exaggerated optimism; any reasonably safe therapeutic procedure will in this country secure an unbiassed trial, especially if there is sound experimental evidence in its favour.

THE POISON APPARATUS OF THE STING RAY.

AT a recent meeting of the Zoological Society of London Major H. M. Evans, M.D., R.A.M.C., read a paper on the poison organ of the sting ray (*Trygon pastinaca*). It had, he said, been observed for centuries that the wounds produced by the serrated spine growing from the base of the whip-like tail of the sting ray produced very severe injuries and pain and inflammation, which could not be accounted for by the laceration of the wounds alone. Dr. Antonio Porta, in 1905, described a gland in the groove lying medially to the rows of teeth on either side; he stated that it was similar to the gland found in *Scorpaena*. Major Evans's researches had not confirmed Porta's description in all particulars. The examination of a series of sections showed a gland of a different type from that found in the weevers, *Scorpaena*, etc. He emphasized the following points: (1) The origin of the gland from a special epithelial structure at the base of the spine; (2) the arrangement of follicles discharging their secretion by ducts or canals, communicating with the exterior by means of nipples or filaments; (3) the arrangement of these nipples at the base of the teeth; (4) the presence of muscular fibres surrounding the main canals which are instrumental in discharging the venom.

THE BATTLEFIELDS OF EAST PRUSSIA.

PROFESSOR KIRCHNER, who as a member of the Commission sent to East Prussia after the first, and again after the second Russian invasion, had exceptional opportunities for studying the effects of modern warfare, has published an account of his experiences. On August 20th, 1914, the population was notified that the province must be evacuated. Many thousands streamed away and were cared for by the war organizations. Between August 26th and 28th Hindenburg's victory temporarily eased the pressure of the Russian armies, and the civil medical administration was set the task of restoring order to the ravaged province. Professor Kirchner found the conditions less serious than he expected. Alarmist rumours had spread through the press to the effect that at the battle of Tannenberg thousands of Russians had perished in the Masurian lakes. It was feared that all the drowned men and horses would poison the province. But, as a matter of fact, the lakes are far from Tannenberg, and no foundation for these rumours could be discovered. On the whole, there was little disorganization from the sanitary point of view. The dead had been properly buried, and even on the battlefields there was little trace of the recent past. The wells were in good condition, and the land was again being ploughed. The sum of 20,000 marks was provided for the care of infants and the tuberculous; temporary hospitals were run up in place of those that had been destroyed; 200 beds, with bedding, were supplied in a few days by the Red Cross; and the requisite number of doctors and chemists was also provided. But in October fresh Russian forces swept over the border, and the province had again to be evacuated. This time the Russians stayed longer, and devastated the country more thoroughly. When Professor Kirchner and his Commission returned to the province after the second Russian retreat, the country was ruined. It was estimated that 300 million marks would be required to restore the 36,000 houses which had been burnt. Russian prisoners were employed by the thousand in gangs of thirty to forty for three months. Trenches were filled up, wells were cleaned, and hospitals and other most necessary buildings were restored. The graves of the fallen were also attended to. By July, 1915, some 75 per cent. of the inhabitants had returned, but for lack of housing accommodation a considerable degree of overcrowding was unavoidable. Though great efforts were being made to restore the province, Professor Kirchner foresaw that the ravages of the war would take long to repair.

THE BELGIAN ATROCITIES.

WE may be permitted here to make reference to a Birthday honour not mentioned among those enumerated elsewhere. The editor of the *Field* went out of his own line of country to publish in February, 1915, a special supplement containing a report by Dr. Arthur Tacquin; one of the physicians-in-ordinary to the King of the Belgians. It was copiously illustrated; it did not show all the crimes against our common human nature committed by the Germans in Belgium. It would have needed a cinematograph and the result might not have been edifying, but it contained a sufficient number of photographs to prove the depth of the fuddleheadedness which caused them to destroy the whole machinery of communal life in many parts of what they then regarded and still profess to regard as a conquered province. The great merit of the publication was that it foresaw and answered by anticipation the excuses the Germans would make if they failed as they have failed, though they are not yet beaten. The nature of the excuses is illustrated by a letter received by Professor H. A. Lorentz, the eminent physicist of Haarlem, from Dr. Max Planck, professor of physics in the University of Berlin. Sir Oliver Lodge sent a translation to the *Times* of June 5th. It began by the statement that "The well-known appeal to the world of culture which was signed by 93 German scholars and artists, and published in August, 1914, has, owing to the terms in which it was drawn up, led to mistaken conceptions as to the attitude of the signatories." Professor Planck says that the "appeal, which reflects in its composition the patriotic excitement of the first weeks of war, was intended to signify and could signify nothing but an act of defence—above all, of protection of the German army against the bitter accusations brought against it." After stating the obvious fact that scholars and artists of Germany cannot be responsible for every single action of every German, he goes on to say that "we are not as yet in a position to pass a final judgement in any scientific sense of the term on the great questions of the history of the present day. Only a subsequent, many-sided, and objective examination can decide in which quarters will be finally fixed the primary responsibility for the failure of the efforts for peace and for all the human suffering which has been caused—an examination whose results we await with a quiet conscience." Dr. Planck, it will be seen, avoids any attempt to consider the evidence of the atrocious manner in which the German army wars upon civil populations. It has been set out in official publications which have not and cannot be gainsaid, and Sir Theodore Cook's particular service, in the two supplements of the *Field*—that to which we have already

referred and another published this year—has been to put some of the facts in an objective form before the large public which does not read official documents.

MILITARY HOSPITAL GAZETTES.

WE have referred from time to time to periodicals issued by military hospitals in Great Britain. We have now received a copy of what we believe to be the first publication of this kind issued by a hospital with the British Expeditionary Force in France. It is entitled, *Behind the Lines*, and comes to us from the officer commanding the stationary hospital by which it is issued. The editor, in a preface, says that it is intended primarily to form a common bond of interest and information among the members of the unit, and at the same time "to brighten the lives of the patients within the walls of our historic building." The first article, by an officer who has been with the unit from the beginning, gives a sketch of its history from the evening of August 4th, 1914, when orders were received to mobilize. On August 7th the work of drawing the equipment (which weighed some 30 tons) and loading it on to a train was begun, and by August 9th the unit was ready to move. It actually left on August 14th, and disembarked in France on the following day. The first piece of work it was given was to organize rest stations along the line of evacuation, and its services in that capacity were very useful in the early days of the campaign when from necessity large numbers of the wounded had to be removed in improvised trains. In September the unit, through the courtesy of the French authorities, obtained possession of a very fine building as a hospital, and within a day or two was actually engaged in hospital work. A month later, however, it had to move again, and in its new home received a large number of wounded from the battle of Ypres. Where the hospital is now does not appear, but thanks are expressed to Captain Marescaux of the French Army Engineers for helping to get a rambling old building into order. The oldest of the home periodicals of this class, the *Craigleith Hospital Chronicle*, continues its cheerful way, but it has compressed its May and June numbers into one. We note in it an appeal from the Propaganda Bureau, 3, Rue François 1er, Paris, established under the auspices of the Ministry for Foreign Affairs, for contributions to an exhibition which it is getting up of trench magazines. The original notion appears to have been to collect such magazines from the French army only, but the appeal continues, "now that the fellowship of the allied nations and of their armies is being asserted more firmly than ever, we think it would be useful to show that all the soldiers of the Entente are equally filled with that spirit of humour, fun, and cheerfulness which is so fitting an accompaniment to their display of heroism, and testifies to their unconquerable hopes." Editors of such periodicals may be asked to remember also that the library of the British Medical Association is forming a collection, and that Dr. W. W. Keen of Philadelphia is doing the same for the great library of the College of Physicians in that city. *The Gazette of the 3rd London General Hospital* has issued two numbers since we mentioned it last. It continues to be remarkable for the excellence of its caricatures. Two which will appeal to many are drawings of a dog in the hospital, one as seen by its fond mistress, and the other as seen by a jaundiced world. To the June number Mr. Nevinson contributes one of his admirable cubist drawings, "At the Concert," but to get the smile on the faces of the audience he is compelled to resort to curves. *The Norfolk War Hospital Magazine* has reached its third number; it also mixes grave with gay, and has some clever drawings, including some thumb-nail sketches of surgeons and nurses in an operating theatre. We have also seen a copy of the *Brigade Revue*, issued by the 2/1st South Wales Mounted Brigade, which seems to be almost entirely frivolous. It is not medical, although we believe the medical officers have something to do with it. The best thing in it is a piece of advice: "Fear no man! Do right! Fear all women! Don't write."

IMPORTED SYNTHETIC DRUGS.

THE JOURNAL this week publishes an advertisement of somewhat unusual character, issued by the firm of W. Martindale, manufacturing chemists. It appeals to the medical profession to recognize the necessity of supporting British chemical industry. It is stated that even now a very large proportion of organic chemicals in demand are being imported instead of being made at home. The opinion is expressed that without assistance and incentive to the home trade from the Government and the medical profession, there will be a reversion at the end of the war to conditions very similar to those which existed before it broke out. The Council of the British Medical Association, in its annual report,[1] expressed the view that the country and the profession cannot afford again to be left at the mercy of a foreign supply of substances many of which are essential in medical and surgical treatment. The Council has accordingly asked the Government to consider the advisability of assisting British manufacturing chemists to produce the necessary drugs and chemicals heretofore imported from Germany. There can be no doubt that the medical profession can exercise great influence if it keeps the point constantly in mind. Not a few of the substances which have been exploited by German advertisements under fancy names are of known chemical constitution, and can be made by any competent manufacturing chemist, but the chemists say that they cannot be expected to lay down plant to manufacture drugs and chemicals unless they have some reasonable prospect of receiving sufficient support to ensure them against eventual loss. The amount of money which used to go out of the country to Germany for organic and synthetic chemicals, many of them of very questionable value, was very large, and the demand was in a great part due to the success with the medical profession of the German advertising propaganda.

BENEVOLENT FUND FOR THE R.A.M.C., TERRITORIAL, SPECIAL RESERVE, AND NEW ARMIES.

ABOUT 100 officers attended the meeting held at the R.A.M. College on June 1st to consider the advisability of establishing, for the benefit of officers, non-commissioned officers, and men, of the Territorial, Special Reserve, and new armies, some kind of benevolent organization similar to that which exists in the Regular Royal Army Medical Corps. The Director-General, Sir Alfred Keogh, who was in the chair, explained the various benevolent funds which exist in the R.A.M.C.(Regulars). After some discussion, during which Dr. West pointed out that the dangers of overlapping with the British Medical Benevolent Fund must be avoided, it was unanimously agreed that it would be of the greatest advantage to start a benevolent fund for the auxiliary branches of the R.A.M.Corps, and a provisional committee of eight officers representing each of the three branches was appointed. This committee was directed to inquire into the whole matter, and to report to a general meeting of officers to be held towards the end of June. Sir Alfred Keogh was warmly thanked for the interest he took in the welfare of the members of the medical services of the army, and a vote of thanks to him brought the meeting to a close.

WITH the current number of the *British Dental Journal* there is published a war supplement on the treatment in Germany of gunshot injuries of the face and jaws. In preparing this supplement Mr. Dolamore has read and extracted practically the whole German literature on the

[1] SUPPLEMENT TO THE BRITISH MEDICAL JOURNAL, May 6th, 1916, page 97.

subject since the Russo-Japanese and Balkan wars. Splinting and reparative apparatus in the main resemble those in general use. Of special interest are the notes on the use of sunlight and cupping glasses in promoting healing, the description of plastic and bone-implanting operations, and a summary of the histological and clinical laws of implantation. The supplement contains 80 well-written pages, with 88 excellent illustrations. It has been printed also as a separate pamphlet, which can be obtained at the British Dental Association Offices, 19, Hanover Square, at a cost to non-members of 5s.

BY a recent decree of the Italian Government all medical practitioners up to the age of 46 have been called up for military service.

Medical Notes in Parliament.

Compulsory Military Service.

UNDER the new Military Service Act every British subject ordinarily resident in Great Britain who, for the time being, has attained the age of 18 and has not attained the age of 41 before the appointed date (June 24th, 1916) is liable for military service for the period of the war, but as far as possible men are not to be sent to serve abroad before they attain the age of 19. For the purpose of comparing the position in other countries with that which will exist in this country after June 24th, it will be interesting to reproduce information given by Mr. Tennant to Mr. W. Thorne on May 16th, in a written answer:

In *Germany* military service commences on the 17th birthday and terminates on the 45th. Active military service does not commence before the 20th birthday (in peace).

In *Austria* it begins on the 18th birthday and terminates on the 42nd birthday. Austrians are now being called up to the age of 55. Active military service commences from January 1st of the year in which the 21st birthday occurs.

In *France* military service commences in the year following the 19th birthday and terminates twenty-eight years from October 1st of the year following that in which the 19th birthday occurs.

In *Belgium* military service commences on the 18th birthday, and terminates in peace time on the 33rd birthday. Those between 18 and 25 in addition to those serving on March 1st, 1915, must serve for the duration of the war.

In *Italy* military service begins on the 20th birthday, and terminates on the 39th birthday.

In *Russia* military service begins in the October following the year in which the 20th birthday has occurred, and ends on the 43rd birthday.

In *Serbia* and *Montenegro* military service commences on the 18th birthday, and terminates on the 50th and 62nd birthdays respectively.

In *Turkey* military service commences on March 1st following the 20th birthday and terminates twenty-five years subsequently.

In *Japan* military service commences on the 17th birthday, and ends on the 39th birthday. The men are not called up for actual service till 20 years of age, but may enlist between the ages of 17 and 20.

No claim for discharge holds good in war time in the cases of Germany, Russia, Austria, and France, even if the age limits specified for those countries have been reached. In war time Austrian and German conscripts are called on for active service at any time after their 17th birthday.

War.

Dardanelles and Mesopotamia. — On May 31st Mr. Shirley Benn asked the name of the chief medical officer with the Expeditionary Force at the Dardanelles, and also the name of the medical officer who had the responsibility in regard to medical provision for the expedition to Mesopotamia. Mr. Tennant replied as follows: "The Director of Medical Services of the Expeditionary Force at the Dardanelles was, first, Surgeon-General Birrell, and, later, Surgeon-General Bedford. The arrangements for the Mesopotamian expedition were made by the Government of India, and Surgeon-General Hathaway was the Director of Medical Services of the Force. Surgeon-General Sir W. Babtie was Director of Medical Services in India at the time."

Inoculation.—On June 1st Major Guinness asked whether, when inoculating troops against typhoid and cholera, certain officers R.A.M.C. did not sterilize their hypodermic needles between individual inoculations, relying solely on the sterilization of the skin. Mr. Tennant said that he was not aware that this happened. Instructions had been, and were now, issued with all consignments of antityphoid vaccine emphasizing the importance of sterilizing the needle after each injection, and this was understood to be the routine practice with all injections. If evidence were produced that these instructions were in some instances not being followed, all commands would be informed.

Artificial Limbs.—In reply to a question by Mr. Barnes, who appeared to be under the impression that sailors and soldiers who had lost a limb or limbs were dependent upon charity for the supply of artificial limbs, the Financial Secretary to the Admiralty said, on May 31st, that all artificial limbs for sailors and soldiers rendered necessary by injuries received on service were supplied in the first place, and subsequently repairs carried out or replacement when necessary made, at the expense of Admiralty, War Office, or Greenwich Hospital funds. The particular class of limb fitted was decided on by skilled orthopaedic surgeons, bearing in mind the man's probable future employment. No sailors or soldiers were dependent on charity for such appliances.

Food Parcels to Germany.—Mr. Tennant stated on June 1st that there was reason to believe that the supply of parcels to prisoners of war in Germany would be more efficiently carried out if the efforts of the numerous organizations which have taken up this work were properly co-ordinated; steps had already been taken to effect this. In a written reply, on the same day, Mr. Tennant said that he believed that the great majority of parcels properly packed and addressed reached British prisoners in Germany, but it was impossible to state any percentage.

Small-pox and Vaccination.—In a written reply, on June 1st, Mr. Tennant said that orders curtailing soldiers' leave on account of small-pox outbreaks in the counties of Lancashire, Northumberland, Durham, Glamorgan, and Monmouth, had been in force, but had now been withdrawn, except in the case of three towns where cases of small-pox had recently occurred. The restrictions would not be enforced in regard to men who had been recently successfully vaccinated.

Motor-car Duties.—Mr. Wason asked the Chancellor of the Exchequer on May 31st whether he proposed to differentiate between low-priced cars practically only used for trade purposes and cars built and used privately for pleasure; and whether, in view of the ever increasing scarcity of petrol, the time had not arrived when no one should be allowed to use a private motor without a permit from the Government. Mr. McKenna replied that cars used for trade purposes were, under existing law, more favourably treated than pleasure cars, provided they were constructed and adapted for trade purposes. He did not think it would be possible in practice to make the concession depend solely upon use apart from construction, as the opportunities for evasion would obviously be very great. In a written reply, on the same day, Mr. McKenna said that he was considering whether exemption from duty could not be granted for cars used exclusively by officers of the Volunteer Training Corps in the execution of their military duties while called up in protection companies on the lines of communication in England, but he did not think it would be practicable to make any concession in respect of cars used partly for such purposes and partly for other purposes.

Milk Supply of London. — The Parliamentary Secretary to the Board of Trade has stated, in reply to various questions, that at a conference he had had with representatives of the London milk trade, they alleged that the prices the London purveyors were paying were from 5d. to 6d. a gallon more than pre-war prices. The rise was partly due to increased cost of distribution, but mainly to the high price of all agricultural produce, and particularly of meat and cheese. If farmers could not obtain anything like a proportionate price for milk there was a tendency to sell cows and heifers to the butcher, and this was accentuated by the withdrawal of milkers for military purposes. If, owing to disproportion of price, the production of milk were reduced, a shortage of milk would follow, which would have more serious consequences than the rise in price. There was no evidence of any shortage of supply at present. It was not easy to compel men to carry on business which did not bring in a reasonable profit, and he believed that in the long run the best way of keeping up the milk supply was to pay a price which would yield to the producer a fair return for the increased cost of labour, feeding stuffs, and cows, and not less remunerative conditions than other branches of agriculture. The increase in the contract price as compared with the rates prior to the outbreak of war represented the larger part of the increase in the retail price in London.

THE WAR.

MEDICAL ADVISORY BOARD IN FRANCE.

THE British Force in France has been steadily growing, and as the medical department has not been unaffected certain primary and secondary results are worth attention here. Among primary results are an increase both in the number of medical units and the total medical personnel; apart from additional battalion medical officers, new field ambulances have arrived, new casualty clearing stations have had to be created, more motor ambulance convoys and hospital trains provided, fresh convalescent camps started, new mobile laboratories set to work, further sanitary sections formed, extra advanced medical dépôts opened, and the number of hospital beds increased either by the extension of existing stationary and general hospitals, or the addition of new corresponding units.

Among the secondary results has been an increase in the number of civilian medical men of distinction appointed to act as consultants to the British forces in France. In the first stage of the war, when the British army was represented in France solely by the original Expeditionary Force, there were only two consultants. By the end of 1914 the two had grown to half a dozen, and there are now about fifteen or sixteen, if all those who do work of a consultant order be included in the count. Of the total number, one is attached to each of the field armies, his primary duty being to supervise the professional work of the casualty clearing stations in his area; two are attached to general head quarters; and the rest fulfil the needs of the various hospital bases.

A further interesting development is the result less of the growth of the army as a whole than of the great increase in the area that it now covers.

Very soon after he arrived in France to take personal charge of the medical affairs of the army, Sir Arthur Sloggett converted his principal officers and such consultants as had then been appointed into a kind of council, and this council, which grew with the number of consultants, he has ever since periodically summoned to meet for the discussion of current questions. But when the first extension of the British army zone took place, it became more difficult to bring together those who would naturally be present, and now that the area has been still further extended, the distances that have to be covered are so considerable that the occasions upon which all members will be able to leave their ordinary work for the time being to attend the meeting are likely to be increasingly rare.

In consequence of this the Director-General has recently supplemented his advisory board by a kind of inner council consisting of members on whose presence he can always depend. Its constitution is as follows:

Chairman: The Director-General, Surgeon-General Sir A. T. Sloggett, K.C.B., C.M.G., K.H.S.
Vice-Chairman: Surgeon-General T. B. Woodhouse, C.B.
Members:
Surgeon-General Sir G. H. Makins, K.C.M.G., C.B., F.R.C.S.
Surgeon-General Sir A. A. Bowlby, K.C.M.G., K.C.V.O., F.R.C.S.
Colonel Sir Wilmot Herringham, C.B., M.D., F.R.C.P.
Colonel Sir J. R. Bradford, K.C.M.G., C.B., F.R.S., M.D., F.R.C.P.
Colonel Sir W. B. Leishman, C.B., F.R.S., M.B., F.R.C.P., K.H.P.
Lieutenant-Colonel W. W. O. Beveridge, C.B., D.S.O., M.B.

If this list be analysed, it will be found that the permanent and temporary medical officers of the army—or, in other words, the military and civilian elements of the present medical service—are represented in exactly equal proportions. The first two and last two are permanent officers, the middle four civilian consultants holding temporary rank.

It will also be found that the same equality of representation appertains to the four great divisions of medicine in the field—Administrative medicine by Sir Arthur Sloggett and General Woodhouse; surgery by Sir George Makins and Sir Anthony Bowlby; clinical medicine by Sir Wilmot Herringham and Sir John Rose Bradford; preventive medicine by Sir William Leishman and Lieutenant-Colonel Beveridge.

On still more minute analysis some other points of interest emerge. Thus, general administration and base administration may be taken to be represented by the chairman and General Woodhouse respectively, the latter being D.M.S. on the lines of communication; front line surgery, by Sir Anthony Bowlby, who has served with the field army ever since his arrival in France about September, 1914; base surgery, by Sir George Makins, who came out at the same time as Sir Anthony Bowlby, but took to base hospital work as soon as the Flanders front was formed; front line medicine by Sir Wilmot Herringham, who has been serving with the field armies for the past fifteen or sixteen months; base medicine, by Sir J. R. Bradford, who came out about the same time, but has been engaged throughout in base hospital areas; and the bacteriological and hygiene sides of preventive medicine are represented by Sir William Leishman and Colonel Beveridge respectively.

It is clear, therefore, that the constitution of this board must have been very carefully thought out, while its professional strength is very noteworthy.

NERVOUS AND MENTAL SHOCK.

WE are indebted to Lieutenant-Colonel William Aldren Turner, M.D., R.A.M.C.(temp.), F.R.C.P., Physician to King's College Hospital and to the National Hospital for the Paralysed and Epileptic, London, for the following account of the arrangements for the care of cases of nervous and mental shock among soldiers coming from overseas:

Cases of nervous and mental breakdown due to shock, fatigue, exposure, and the other conditions incidental to a campaign, began to arrive in England in September, 1914, shortly after the commencement of hostilities. The cases showed a varied symptomatology, but could be classified into three main groups. One group was recognized whose symptoms were due to the bursting of high explosive shells in the immediate vicinity of the patient or to the secondary effects of the explosion, such as burial under earth and débris or the inhalation of noxious gases. The second group included cases of a general neurasthenic character (using this term in its widest sense) attributable to exhaustion of the nervous system resulting from physical and nervous strain, sleeplessness, fear, anxiety, and harassing sights and experiences. The third group included cases of mental breakdown—the milder as well as the more severe psychoses—mental confusion, mania, melancholia, and delusional and hallucinatory psychoses.

At the commencement of the war the cases of nervous shock and neurasthenia were transferred from overseas in company with medical and surgical cases, and were treated in the general wards of the hospitals at which they arrived, while the cases of mental disorder were transferred to D block, Netley, the established institution for the treatment of mental patients in the service of the army.

As cases of nervous breakdown of all kinds were coming over in considerable numbers in consequence of the severe fighting during October and November, 1914, and as it was deemed desirable that special provision should be made for their treatment, Sir Alfred Keogh commissioned a special medical officer to proceed to France to report upon the cases—their nature and numbers and the conditions under which their treatment should be carried out to the best advantage both during the preliminary stages in France and afterwards on their arrival in this country. The general purport of the report was to the effect that the cases of nervous shock and neurasthenia should be given treatment in hospitals for nervous diseases and in special institutions provided for the purpose, under the care of physicians with special neurological knowledge. In consequence, arrangements were made whereby cases of neurasthenia and nervous breakdown were labelled on their departure from the base hospitals by medical officers with special qualifications for this work, and were transferred directly to the special hospitals and institutions provided for their treatment at home. By these means cases of functional paralysis, neurasthenia, and the milder psychoses were separated as early as possible from cases of severe mental disorder.

The special institutions were the hospitals for nervous diseases and the Red Cross Military Hospital, Maghull. This institution, which was built to meet the requirements of the Mental Deficiency Act, was handed over to the War Office in December, 1914, as it was necessary to have a hospital suitable for those "borderline" cases which

required more special supervision than could be given in hospitals. It was desirable, also, to provide an institution to which mental cases might be sent from D block, in order to obviate their transference to public asylums—a policy which was adopted in view of the special circumstances attending the cause of the disorders. The Military Hospital, Maghull, being built upon the villa pattern, provided the requirements of these cases. To meet the increasing number of cases, further institutions were added at later dates to those just mentioned, namely, the Springfield War Hospital for severe and protracted cases of neurasthenia and "borderline" cases, and the Napsbury War Hospital for cases of acute mental disorder requiring asylum care and supervision.

CLEARING HOSPITALS.

In order that all cases should receive a short period of rest and treatment on their return from France before being transferred to the most suitable institution for final disposal and treatment, two "clearing" hospitals were established early in 1915. These were:

1. *The Neurological Section, 4th London Territorial General Hospital.*—All neurological* cases, labelled as such at the British base hospitals overseas, were transferred to this section. There they received a short probationary course of treatment, with the result that a large number recovered rapidly and in due course were returned for light duty. A certain number, however, were of a more serious and protracted character. These were transferred eventually to one of the hospitals provided for the purpose—namely, the Maghull or the Springfield War Hospitals. In the event of a patient becoming insane, he was transferred to D block, Netley, or to the Napsbury War Hospital.

2. *D Block, Netley.*—All cases of acute mental disorder arising in soldiers overseas were transferred to this section. After a short period for observation and discriminatory sifting, the cases were transferred, on the one hand, to Napsbury War Hospital, should they be considered of a certifiable character and to require care and treatment under asylum conditions; on the other hand, to the Maghull or Springfield War Hospitals if of a non-certifiable character but requiring more care and supervision than could be obtained in a general hospital.

NEUROLOGICAL SECTIONS.

The foregoing is a brief review of the provision for the cases of nervous and mental breakdown up to May, 1915. For some time before this date it had been noticed that a considerable number of neurological cases were coming from overseas directly into central and auxiliary military hospitals scattered throughout the country. Partly to meet the needs of these cases and partly to provide additional accommodation for the increasing number of cases, the Director-General established Neurological Sections in all the Territorial General Hospitals throughout England, Scotland, and Wales (May 24th, 1915). These sections were officered where possible by physicians specially versed in nervous diseases. The primary object of these sections was to furnish the same probationary course of treatment to the cases on arrival at the Territorial General Hospitals as was given in the clearing hospitals, and to bring in all cases from the auxiliary hospitals in which suitable or sufficient treatment was not available. Moreover, cases of a serious or protracted nature, or cases requiring supervision of a special character, could be transferred from them to the Maghull or Springfield War Hospitals.

Scotland.—With the introduction of Neurological Sections into the Scottish General Territorial Hospitals it was considered advisable that a special hospital should be provided in Scotland. Through the assistance of the Scottish Branch of the Red Cross this was forthcoming in the Royal Victoria Hospital, Edinburgh, which has continued to provide accommodation for cases of a neurological character.

Netley.—At the same time a Neurological Section was formed in the main hospital building, Netley, the chief object of which was to permit of the removal from the convoys arriving at D block from overseas all cases which the medical officers there considered did not require supervision of a special kind, as some cases had so far recovered on arrival at Netley as to be deemed suitable for treatment in a neurological rather than in a mental section.

THE DISPOSAL OF PATIENTS.

In order to understand fully the arrangements existing at the present time for the care and treatment of unwounded soldiers suffering from nervous shock, neurasthenia, and mental disorder, let us follow from overseas two or three hypothetical patients to their final destination in this country.

On arrival at one of the British base hospitals abroad, the soldier's condition is investigated by a special medical officer. The patient then is sent to a section of a hospital according as his symptoms are of a neurological or a mental character. Should he be suffering from transitory mental symptoms which subside rapidly, he is transferred from the mental to the neurological section as soon as it is advisable to do so. In order to meet this class of case special accommodation is now being provided at the base hospitals overseas, so that the patient may be placed under the most suitable circumstances for rapid recovery. The patients are labelled for transference to one of the clearing hospitals at home—if neurological, to the 4th London Territorial General Hospital, or the Neurological Section, R.V.H., Netley; if mental, to D block, Netley.

Neurological Cases.

On arrival at one of the clearing hospitals just mentioned, or at a neurological section in any Territorial General Hospital, the patient is given treatment. If his symptoms are slight or transitory and disappear rapidly, he is sent on furlough and later is returned to light duty. On the other hand, should the course of the disorder be less favourable or should symptoms develop which require special supervision, or if it is the opinion of the medical officers that the case is likely to be protracted, or to require special treatment not available in the section, the patient may be transferred to one of the special hospitals for nervous diseases or to a special institution: (*a*) to the Military Hospital, Maghull, for the Northern and Western Commands; (*b*) to the Springfield War Hospital for the Eastern, Southern, and Aldershot Commands; (*c*) and to the Royal Victoria Hospital, Edinburgh, for the Scottish Command. If the patient is under treatment at one of the hospitals in the Irish Command, he may be transferred to the King George V Hospital, Dublin.

If for various reasons it has not been possible to send patients home through the clearing hospitals so that they arrive directly from overseas at central or auxiliary military hospitals in which there is no neurological section, or to which no medical officer with special experience is attached, a short period of treatment is given, but should recovery not take place within two or three weeks, the patient is transferred for treatment to the neurological section of the nearest Territorial General Hospital.

From the preceding account it is evident that every case of nervous shock and neurasthenia coming from overseas is given a short period of rest and treatment in the hospital at home at which he arrives. In many instances this period is sufficient to permit of recovery. In other cases sufficient opportunity is provided to study the symptoms with a view to the transference of the patient to one of the special institutions should this further step be necessary.

Mental Cases.

On arrival from overseas at D block, Netley, the patients are examined by the special medical officers attached to the hospital. All cases which are considered to be of a neurological character are removed for treatment to the Neurological Section in the main hospital building, Netley. All patients suffering from the severer psychoses of a certifiable type are given two or three weeks' probationary treatment in D block. If no recovery has taken place during this time, they are transferred to the Napsbury War Hospital, or to the Dykebar War Hospital, Paisley, if their domicile is in Scotland, or if they belong to Scottish regiments.

No mental cases are transferred directly to Ireland, but special arrangements have been made recently by which overseas cases of mental disorder arriving in Ireland may be treated in a villa attached to the Richmond District Asylum.

The number of cases which recover during their stay in D block and are returned to light duty is negligible, but a certain number recover sufficiently during their stay there to be no longer considered as of a certifiable character. These latter are transferred to the Red Cross Military Hospital, Maghull, or the Springfield War Hospital, for further observation and treatment.

A short account may be given of the institutions to which reference has been made, the general character of the cases retained for treatment, and the percentage of cases returned to light duty.

4th London Territorial General Hospital.

The Neurological Section of the 4th London General Hospital is the largest of the Neurological Sections, and in addition to receiving the majority of the neurological cases sent home directly from overseas, it accepts patients transferred from central and auxiliary military hospitals in the London district and adjoining counties. It contains 400 beds. An important

* The term "neurological" is used here to refer to *unwounded* cases suffering from neurasthenia, the functional paralyses, hysteria, and the milder psychoses.

division of the section is the Maudsley Hospital, which is especially well adapted for the care and treatment of soldiers suffering from all forms of traumatic neurasthenia, hysteria, and the milder psychoses.

Netley.

The Neurological Section of the Royal Victoria Hospital, Netley, occupies several wards in the main hospital building, and consists of about 100 beds. It serves a most useful purpose in taking over for treatment cases which have been sent from overseas to D block, but which require no longer the special supervision provided there. Cases are sent also directly to the section from overseas.

The type of case observed and treated in these sections is similar. They are: Most forms of functional paralysis, especially paraplegia, disturbances of speech and articulation, amnesia or loss of memory, the effects of terrifying dreams, mutism, deafness, deaf-mutism, amblyopia, "bent-back," tremblings and motor agitations, tic-like movements, sleeplessness, nervous debility, indecision, loss of self-confidence and the milder forms of neurasthenia, simple mental confusion, the anxiety psycho-neuroses and simple mental depression.

The treatment adopted consists chiefly of rest and feeding; massage, and electrical applications in suitable cases, baths, when these seem indicated, and psycho-therapy in the form of simple suggestion and occasional hypnosis.

In a general way the results of treatment at the 4th London General Hospital show 40 per cent. of cases returned to light duty, 20 per cent. invalided, and 20 per cent. transferred for further treatment to the special institutions.

The Special Institutions.

The Red Cross Military Hospital, Maghull, and the Springfield War Hospital are constructed on somewhat similar lines in that they are provided with single rooms and special accommodation for cases requiring isolation and supervision in addition to day rooms and dormitories.

The Maghull Military Hospital had not been used for the treatment of patients before it was taken over by the War Office, but the Springfield War Hospital had been employed as a hospital for defective children for about ten years.

The available accommodation in the two hospitals amounts to about 550 beds. No case is admitted directly from overseas to either of these institutions, as all cases have received a course of treatment at one of the military hospitals at home before transference. The patients most suitable for treatment in these institutions are cases of neurasthenia of a severe or protracted character, the milder psychoses, such as simple melancholia and the anxiety psychoses, psychoses with obsessions and fears, profound amnesia, epilepsy, high grade mental defectives, the milder types of primary dementia, and all cases of a functional character which do not lend themselves to treatment in a general hospital.

Treatment is conducted upon general lines—rest, feeding, indoor and outdoor recreation, and massage in suitable cases. At the Maghull Military Hospital a form of psycho-analysis has been used with benefit in selected cases. The results of treatment at Maghull show about 40 per cent. of cases returned to light duty.

The Mental Hospitals.

Napsbury War Hospital and Dykebar War Hospital, N.B., receive the majority of their patients from D block, Netley; but Napsbury admits mental cases also from military hospitals in the Southern Command and the Midland counties; Dykebar admits also from military hospitals in the Scottish Command and the Northern counties. The Napsbury War Hospital is the hospital section of the parent asylum; Dykebar is one of the most recent of the Scottish asylums, built upon the villa pattern. The available accommodation in the two hospitals is about 700 beds.

The patients transferred to these hospitals are of a certifiable type and include most of the severe forms of acute mental disorder—the confusional psychoses, mania, the graver melancholias, acute delusional and hallucinatory psychoses, dementia praecox, mental deficiency with confusion, general paralysis of the insane, and epilepsy with mental symptoms.

In accordance with accepted policy, none of the patients in these hospitals is certified as a person of unsound mind. Each patient is given a reasonable period of treatment with a view to recovery.

In consequence, however, of the accumulation of chronic and incurable cases which was observed a few months ago, it was decided to board and discharge to asylums all cases of general paralysis of the insane, of epilepsy with insanity, and all patients who had been in asylums prior to enlistment. A certain number of chronic cases also are boarded and discharged to asylums if no improvement is recorded after a fair and reasonable period of observation and treatment.

It is obvious from the nature of the disorders that the percentage of cases returned to light duty must be small, but the figures from the Napsbury War Hospital show from 10 to 15 per cent. of cases discharged to light duty.

CASUALTIES IN THE MEDICAL SERVICES.

ROYAL NAVY.

IN the great naval battle fought off the coast of Jutland on May 31st and June 1st we have lost six large ships and eight destroyers; 335 officers were killed, and 25 wounded officers survived. From the *Queen Mary* four officers were saved, and from the *Invincible* two; the *Indefatigable*, *Defence*, and *Black Prince* went down with all their ships' complements, while on the *Warrior* only one officer was lost. The list of officers killed includes 23 medical officers.

Killed.

H.M.S. Queen Mary.

Fleet Surgeon Francis F. Lobb.

Surgeons Charles W. Lewis; Maurice H. de J. Harper, M.B.

Fleet Surgeon Lobb received his medical education at St. Mary's Hospital, and took the diplomas of M.R.C.S., L.R.C.P. in 1893. He received the South African medal for services on H.M.S. *Thrush* in the Delagoa Bay blockade and the landing at Mossel Bay and Lambert's Bay. In 1901 he served with the Gambia River expedition and organized a base hospital. In that and the following year he took part in the Aro River expedition, which was for fourteen days in boats up the Lower Niger; for these services he received the general African medal with Aro clasp. As staff surgeon on the *Pegasus* in 1908 he was awarded the French marine medal for services in connexion with the wreck of the barque *Le Président Félix Faure*. In 1909 he made a report on Pitcairn Island, for which he received the thanks of the Colonial Office. He was promoted Fleet Surgeon on May 23rd, 1914.

Surgeon Lewis, the son of Professor Lewis of Capetown, graduated M.B., Ch.B.Edin. in 1914, and received his commission as temporary Surgeon R.N. on March 13th, 1915.

Surgeon Harper graduated M.B., B.S.Durham in 1914, and received his commission as temporary surgeon R.N. on September 21st, 1914.

H.M.S. Invincible.

Fleet Surgeon Walter J. Bearblock.

Surgeons Cyril O. H. Jones; George Shorland.

Fleet Surgeon Bearblock was educated at Guy's Hospital, and took the diplomas of M.R.C.S., L.R.C.P.Lond. in 1887. He was at one time assistant house-surgeon at the Royal Albert Hospital, Devonport. He attained the rank of Fleet Surgeon on February 21st, 1905.

Surgeon Jones was educated at St. Thomas's Hospital, where he was house-physician. He took the diplomas of M.R.C.S. and L.R.C.P.Lond. in 1915, and entered the navy as temporary Surgeon on August 17th, 1915.

Surgeon Shorland was educated at Guy's Hospital, and took the M.R.C.S. and L.R.C.P.Lond. in 1901. He was medical officer of the Railway Clearing House, Euston Square, and honorary surgeon to the Railway Benevolent Institution till he took a temporary commission as Surgeon in the navy.

H.M.S. Indefatigable.

Fleet Surgeon Hugh L. Norris.

Surgeons Sidney Punch; Archibald A. Morison.

Fleet Surgeon Norris was educated at St. Thomas's Hospital, and took the diplomas of M.R.C.S., L.R.C.P. in 1898. He was promoted to Fleet Surgeon on November 8th, 1914.

Surgeon Punch was educated at University College, Cork, and took the diplomas of L.R.C.P. and S.Ire. in 1912. He entered the navy as Surgeon on October 4th, 1912.

Surgeon Morison, who was 29 years of age, was the sixth son of the late Dr. Donald Morison (Bengal), and was educated at the University of Edinburgh, where he graduated M.B., Ch.B. in 1912. He took the Beaney prize in surgery and anatomy in 1910, had been resident surgeon at the Royal Maternity Hospital, Edinburgh, and was a fellow of the Edinburgh Obstetrical Society. He received a temporary commission as Surgeon R.N. on August 6th, 1914.

H.M.S. Defence.

Fleet Surgeon Frederick A. Capps.

Surgeons Frederick W. T. Clemens; G. M. Johnson, M.B

Fleet Surgeon Capps received his medical education in Edinburgh, and took the triple Scottish qualification in 1890. He attained the rank of Fleet Surgeon on May 11th, 1908.

Surgeon Clemens was educated at the University of Bristol, and took the degrees of M.B., B.S.Lond. in 1913. He had been assistant house-surgeon to the Taunton and Somerset Hospital, and received his commission as temporary Surgeon R.N. on August 6th, 1914.

Surgeon Johnson was educated at Oxford and the London Hospital; he graduated M.B., B.Ch.Oxford in 1908, and was at one time house-surgeon and house-physician to the Radcliffe Infirmary. He received his temporary commission as Surgeon R.N. on September 28th, 1915.

H.M.S. Black Prince.

Fleet Surgeon Herbert L. Geoghegan, M.D.

Surgeons Thomas M. Wood-Robinson; John S. D. MacCormac.

Fleet Surgeon Geoghegan graduated M.A., M.B., B.Ch., B.A.O., Trinity College, Dublin, in 1895, and M.D. of the same university in 1898. He attained the rank of Fleet Surgeon on May 15th, 1915.

Surgeon Wood-Robinson was educated at the Middlesex Hospital, where he was house-physician; he took the diplomas of M.R.C.S. and L.R.C.P. in 1914. He received his commission as temporary Surgeon R.N. on March 18th, 1915.

Surgeon MacCormac, aged 44, was the elder son of Mr. William MacCormac, of Banbridge, co. Down. He took the Scottish triple qualification in 1894. He practised at one time in Leicester, but removed to London, and was appointed anaesthetist to the Royal Dental Hospital, Leicester Square. On the outbreak of war he received a commission as surgeon, and was appointed to H.M.S. *Statesman*, being subsequently appointed to the *Black Prince*.

H.M.S. Ardent.

Surgeon-Probationer John E. McIntyre.

H.M.S. Nomad.

Surgeon-Probationer David J. T. Oswald, R.N.V.R.

H.M.S. Nestor.

Surgeon-Probationer Alexander Joe, R.N.V.R.

Mr. Joe was the son of Mr. and Mrs. John Joe of Brechin. He was in his last year at Edinburgh University when war broke out and at once volunteered for service.

H.M.S. Shark.

Surgeon-Probationer Robert Walker, R.N.V.R.

Surgeon George B. Moon, R.N.; and Surgeon-Probationers David H. Ferris, Hugh J. Dingle, and John Hislop of the R.N.V.R. were also killed on other ships.

Surgeon Moon was educated at Birmingham and Edinburgh, and took the triple Scottish qualification in 1909. He was at one time assistant medical officer to the Kent County Asylum, Barming Heath, and joined the navy with a temporary commission on November 27th, 1914.

Wounded.

Staff Surgeon Bertram R. Bickford.

ARMY.

Killed in Action.

Captain D. Waterston, Canadian Army Medical Corps, whose death was reported last week, was the son of Thomas Waterston, of Montreal, Canada, and was 26 years of age. He graduated in arts and medicine at McGill University, Montreal, and was appointed captain in No. 9 Canadian Field Ambulance in January last. He was killed while serving in a dressing station in the trenches on May 22nd.

Captain J. G. Mackenzie, Australian Army Medical Corps.

Died of Wounds.

Captain William Norman Watson has died of wounds. He was the second son of the late Rev. William Watson, Kiltearn, Ross-shire, and Mrs. Watson of Edinburgh, and was 27 years of age. He received his education at the University of Edinburgh, where he graduated M.B., Ch.B. in 1913. He joined the R.A.M.C. in December, 1914, and was attached to the King's Own Scottish Borderers. Captain Watson won the Military Cross at the battle of Loos, and was decorated by the King in April last, in which month at the request of the commanding officer he took a combatant commission. Last month he was wounded in the head, and he died in a casualty clearing station. His elder brother, Captain Allan Watson, R.A.M.C., is on active service, so also is his younger brother, Captain Stanley Watson, with the Cheshire Regiment.

Died on Service.

Lieutenant Harry John Sullings Kimbell, R.A.M.C., died in a nursing home in London on May 28th. He was educated at St. Bartholomew's and took the qualifications of M.R.C.S. and L.R.C.P.Lond. in 1907. After serving as house-physician of the West End Hospital for Nervous Diseases, house-physician of the Soho Women's Hospital, resident medical officer of the City of London Lying-in Hospital, and senior house-surgeon of Bedford County Hospital, he went into practice in Richmond Road, Dalston, London, N.E. He took a temporary commission in the R.A.M.C. last August, and was recently in charge of the Preston Hall Hospital at Maidstone.

Lieutenant Harry Rathbone Griffith, R.A.M.C., died at Press Heath Camp, Whitchurch, on May 21st, aged 50. He was the fourth son of the late Rev. Joseph Griffith, Rector of Pentreath, Anglesey, and was educated at Trinity College, Dublin, where he graduated as B.A., M.B., B.Ch., and B.A.O. in 1889, and as M.D. in 1893. He was in practice at Portmadoc, North Wales, where he was Admiralty Surgeon and Agent, and medical officer to the Post Office.

DEATHS AMONG SONS OF MEDICAL MEN.

Barnes, John Christopher Craven, Captain the Border Regiment, youngest son of Lieutenant-Colonel H. J. Barnes, R.A.M.C. (retired), of Greencroft, Colyton, Devon, killed in action on May 28th, aged 22. His commission as lieutenant was dated November 20th, 1914.

Paterson, Richard Eadson, Lieutenant R.N., younger son of Professor A. M. Paterson, of 21, Abercromby Square, Liverpool, killed in action on H.M.S. *Fortune*, in the great naval battle fought off the coast of Jutland on May 31st.

NOTES.

HONOURS.

THE names of the following members of the medical profession appear among those upon whom the King, on the occasion of his birthday, has bestowed distinctions in connexion with the military operations in the field:

C.B.

Surgeon-General J. J. Dennis, R.N.
Fleet Surgeon E. C. Lomas, D.S.O., R.N.
Surgeon-Generals W. G. A. Bedford, C.M.G., A.M.S., R. Porter, A.M.S., T. J. O'Donnell, D.S.O., A.M.S.
Colonels A. P. Blenkinsop, A.M.S., R. H. Luce (T.F.), O. R. A. Julian, C.M.G., A.M.S.
Lieutenant-Colonel C. C. Cumming, R.A.M.C.
Major P. S. Lelean, R.A.M.C.

K.C.M.G.

Colonel (honorary Surgeon-General) W. D. C. Williams, C.B., Australian A.M.C.

C.M.G.

Colonels C. E. Harrison, C.V.O.(T.F.), H. N. Thompson, D.S.O., A.M.S., T. B. Beach, A.M.S., C. W. R. Healey, A.M.S., J. B. Wilson, A.M.S., A. F. L. Bate, A.M.S., E. C. Freeman (T.F.), A. Fullerton, A.M.S.
Lieutenant-Colonels H. E. R. James, C.B., R.A.M.C., A. H. Lister (T.F.), O. L. Robinson, R.A.M.C., H. A. Bray, R.A.M.C., E. W. Slayter, R.A.M.C., T. P. Jones, R.A.M.C., G. S. Thom, R.A.M.C., J. V. Forrest, R.A.M.C., L. Humphry, R.A.M.C., W. H. Willcox, R.A.M.C., Sir J. R. A. Clark, Bt., C.B. (T.F.), B. J. Newmarsh, Australian A.M.C., J. T. Fotheringham, Canadian A.M.C., P. C. Fenwick, New Zealand A.M.C.
Surgeon-Major B. Pares, D.S.O., Royal Horse Guards.
Major G. Hall (T.F.).

C.I.E.

Lieutenant-Colonel James Jackson, M.B., I.M.S., Inspector-General of Prisons, Bombay.
Major Frederick N. White, M.D., I.M.S., Assistant Director I.M.S. (Sanitary).
Captain A. G. J. MacIlwaine, R.A.M.C., Embarkation Medical Officer, Bombay.

D.S.O.

Bagshawe, Major H. V.; Bartlett, Major B. S.; Bourke, Lieut.-Col. E. A.; Chiles-Evans, Capt. D. B. (T.F.); Cowie, Surgeon-Major R. M. (1st Life Guards); Crosland, Major G. W. K. (T.F.); Darling, Major J. M. (S.R.); Farrant, Major C. (T.F.); Fawcett, Major (temp. Lieut.-Col.) R. F. M.; Forrest, Lieut.-Col T. H.; Fraser, Major A. N.; Gairdner, Capt. E. D. (T.F.); Gallie, Lieut.-Col. J. S.; Grech, Lieut.-Col. J.; Henderson, Major P. H.; Heron, Major G. W.; Heslop, Capt. A. H.; Husband; Capt. G. S. (I.M.S.); Osburn, Major (temp. Lieut.-Col.) A. C.; Sewell, Lieut.-Col. E. P.; Smales, Capt. W. C.; Sparkes, Major W. M. B.; Thomson, Major C. P.; Webb-Johnson, Capt. (temp. Major) A. E. (T.F.); McLean, Major J. B. (Aust. A.M.C.); Brown, Capt. T. F. (Aust. A.M.C.); Campbell, Capt. (temp. Major) R. D. (Aust. A.M.C.).

Military Cross.

Blandy, temp. Capt. G. S.; Brechin, Capt. W. A. (T.F.); Bremner, temp. Capt. A.; Bruce, Capt. L. C. (T.F.); Butler, temp. Capt. W. H.; Corkey, temp. Lieut. I. W.; Douglas, Capt. W. R. (T.F.); Drury, Capt. K. K.; Dudgeon, temp. Capt. C. R.; Dyas, Capt. G. E.; Edwards, temp. Capt. A. C.; Evans, Capt. T. J. C. (I.M.S.); Farrow, Capt. J. F. (T.F.); Fraser, Capt. A. D.; Galbraith, temp. Lieut. C. T.; Gilmour, Capt. J.; Gordon, Capt. S. (I.M.S.); Grant, Capt. G. R. (S.R.); Greville, temp. Capt. E. R. G.; Houston, Quartermaster and hon. Lieut. C. F.; Keep, temp. Capt. A. C.; Kendrew, temp. Capt. A. J.; Lovell, Capt. C.; Macdonald, temp. Capt. M. A.; McCallum, temp. Lieut. J. S.; McCammon, Capt. F. A.; MacCormack, Capt. J. D.; McGibbon, temp. Lieut. P.; Milne, Capt. H. S. (S.R.); O'Brien, temp. Lieut. J. W.; Orr-Ewing, temp. Capt. H. J.; Panton, Capt. H. F.; Power, Capt. D'Arcy (S.R.);

Robinson, Capt. G. E. J. A. (T.F.); Rowe, Surgeon-Capt. W. T. (South Notts Hussars, Yeomanry); Sampson, temp. Capt. H. H.; Shore, Capt. L. R.; Stocker, Lieut. C. J. (I.M.S.); Swan, temp. Capt. M. A.; Taylor, temp. Capt. D. C.; Whitton, temp. Lieut. N. S.; Wilkin, Capt. H. F. (T.F.); Clarke, Capt. and Quartermaster A. E. (Aust. A.M.C.); Boddam, Quartermaster and hon. Lieut. E. T. (Aust. A.M.C.); Kidd, Capt. G. E. (Canadian A.M.C.).

Major George Kilner Crosland, who has been awarded the D.S.O., is President of the Huddersfield Division of the British Medical Association. When war broke out the 5th Duke of Wellington West Riding Regiment, in which he held a combatant commission, was mobilized, and he accompanied the battalion as second in command; he served with it until the end of March, 1916, when he was allowed to return to medical duties in Huddersfield. He was gazetted major in August, 1914. He had served as civil surgeon with the South African Field Force for sixteen months during the South African war, and received the Queen's medal with three bars. Major Crosland served fourteen years as a combatant officer in the old 2nd Volunteer Battalion and 5th Territorial Battalion of the Duke of Wellington's West Riding Regiment.

To be Brevet Colonel.

Major (temporary Brigadier-General) A. C. Geddes, M.D., unattached list (T.F.).

The names of the following officers are included in the list of officers who have been awarded the Distinguished Service Order or the Military Cross in a special supplement to the *London Gazette* of May 30th:

D.S.O.

Temporary Captain Thomas Lewis Ingram, R.A.M.C. (attached 1st Battalion, Shropshire Light Infantry). For conspicuous gallantry and devotion to duty. He collected and attended to the wounded under very heavy fire, and set a splendid example. Since the commencement of the war he has been conspicuous on all occasions for his personal bravery.

Military Cross.

Captain James Couper Brash, M.B., 10th Field Ambulance, R.A.M.C. (Special Reserve). For conspicuous gallantry and devotion to duty. He went to an artillery dug-out which had received a direct hit, and, assisted by two men, extricated the wounded and administered first aid under heavy shell fire.

Captain Henry Percival Hart, M.B., R.A.M.C. For conspicuous gallantry and devotion to duty when, although himself wounded, he went out, dressed, and brought into safety the wounded under heavy shell fire.

Temporary Captain Philip Randal Woodhouse, M.B., R.A.M.C. (attached 1st Battalion Irish Guards). For conspicuous gallantry and devotion to duty. He tended the wounded under heavy shell fire, and, though himself wounded, continued his work. On another occasion he went across the open under shell fire to attend to the wounded.

Temporary Lieutenant William John Knight, M.D., 73rd Field Ambulance, R.A.M.C. For conspicuous gallantry and devotion to duty when in charge of an advanced dressing station under heavy shell fire. He continued to attend the wounded with great coolness.

MENTIONED IN DISPATCHES.

Dispatches reporting the reduction of the Germany colony of the Cameroons, in West Africa, from Major-Generals Sir Charles Dobell and Cunliffe, were published on June 1st. Among a considerable number of officers and non-commissioned officers mentioned in these dispatches for good service are the names of the following medical officers and men:

In Sir Charles Dobell's dispatch: Lieutenant-Colonel J. C. B. Statham, C.M.G., R.A.M.C.; Major E. B. Booth, D.S.O., R.A.M.C.; temporary Captain T. M. R. Leonard, West African Medical Staff, and Sergeant G. Price, R.A.M.C.

In General Cunliffe's dispatch: Drs. J. C. M. Bailey, W. S. Clark, W. E. S. Digby, W. H. Peacock, T. H. Suffern, C. E. S. Watson, and R. F. Williams, all of the West African Medical Staff; and Sergeant R. E. Harvey, R.A.M.C.

THE BRITISH RED CROSS.

The annexe of the Star and Garter Home at Richmond for incurably helpless soldiers and sailors is now full of cases, all of a serious character. The arrangements for massage and electricity are complete, a shelter for men who can go on to the Terrace is finished, and a marquee is being erected.

The six launches provided by the motor boat department which served through the Dardanelles expedition have been transferred to Egypt and have been working in the Suez Canal carrying stores; ten launches have been at work for some time on the Tigris; five more have been sent to Basra towards the end of May, and two small runabout launches are being sent to Basra, as well as four large and two small launches which were taken out by a Government transport on May 25th. The dimensions of the large launches are standardized; they are 40 ft. long and 9 ft. broad, with a draught of 2 ft. 4 in. Each provides for sixteen lying down cases, which can be carried either fore and aft or athwart the boat, and between fifty and sixty sitting up cases. In addition a hospital ship 150 ft. long by 30 ft. broad, with a draught of 3 ft., is being built for service on the Tigris. It will carry fifty or sixty cots, and will be equipped with ice-making plant capable of turning out two tons of ice a day, which will be distributed between Amara and Basra, a distance of 130 miles; the boat provides also accommodation for doctors and orderlies.

The War Executive Committee, at its meeting on May 17th, received the report from Sir Arthur Lawley, who had paid a visit to Switzerland at the request of Mrs. Grant Duff, the wife of the British Minister at Berne, who is engaged in sending bread and other parcels to prisoners in Germany. The following resolution was unanimously adopted on a motion of H.R.H. Princess Christian, seconded by the Duchess of Devonshire:

> That, having received the report of the British Section of the "Bureau de Secours aux Prisonniers de Guerre," British Legation, Berne, prepared by Sir Arthur Lawley, the Committee is sensible of the great work that is being done in connexion with British prisoners. The Committee realizes that the record achieved by Mrs. Grant Duff, together with her zealous helpers, is one which could only have been attained by a generous self sacrifice. The Committee desires to place on record its admiration of the work which is being done by the above for the comfort of the British prisoners.

BRITISH AND GERMAN PRISONERS IN SWITZERLAND.

The Swiss medical officers who have been in this country in connexion with the selection of German prisoners to be sent to Switzerland have completed their work. The arrangements were similar to those made between France and Germany, and prisoners were entitled to claim the right to be examined by the commission, which consisted of three British medical officers, one of whom acted as president, and two Swiss medical officers. The diseases, infirmities, and results of wounds considered as rendering prisoners of war eligible for internment in Switzerland are enumerated in a White Paper recently issued. The two first categories are tuberculosis of the respiratory organs, even in incipient stages, and tuberculosis of other organs; other diseases enumerated are chronic constitutional diseases, including poisoning by chlorine or carbonic oxide, chronic affections of the respiratory, circulatory, and digestive systems, and grave nervous conditions. Sir Edward Grey has called attention to the omission of malaria from the category of chronic constitutional diseases, which omission would seem to have been accidental.

The British Foreign Office, in suggesting to the American Ambassador in London that an agreement should be made for the internment of invalid prisoners of war in Switzerland, also suggested that the Swiss medical men deputed should inspect all places of internment and hospitals in which prisoners of war were under treatment in the United Kingdom. The Swiss medical officers have reported very favourably on the arrangements in this country.

The first train conveying British prisoners from Germany reached Zurich on May 29th; it contained 32 officers and 272 men, and another train, containing 150 men, arrived the following day. Both parties received a friendly welcome at Zurich and all along the route to Chateau d'Oex.

Sir Edward Grey has stated in a written answer that four additional members of the United States Embassy at Berlin had recently been appointed to inspect camps in Germany in which British prisoners of war were interned. The Embassy was showing great energy in the matter, and between May 9th and 23rd no fewer than thirty-four working camps near Berlin were inspected. Reports on a large number of camps in Germany have recently been published in a White Paper.

In reply to Mr. Dundas White on June 1st, Sir Edward Grey said that no steps had yet been taken to endeavour to arrange for the transfer to a neutral country of prisoners of war interned in Austria-Hungary, Turkey, or Bulgaria.

England and Wales.

LONDON COUNTY COUNCIL.

AT its meeting on June 6th the London County Council agreed to a request of its Midwives Act Committee, supported by the Education Committee, that classes should be opened for the instruction of midwives. Two classes are to be opened accordingly, one for the north and the other for the south of the Thames, at a cost which is expected to be about £175 per annum.

The Council at the same meeting agreed to extend for a further twelve months the arrangement for supervising certain mental defectives by entrusting them upon agreed terms of payment to the London Association for the Care of the Mentally Defective. This plan was started a year ago, and the number of cases dealt with at present in this manner is upwards of 800. During the year 2,476 visits were paid to the homes of the defectives by the staff of the association, in addition to a great deal of help given by local workers. Quarterly visits are required as a minimum, and the supervision is said to be very satisfactory.

SANATORIUM TREATMENT IN LONDON.

At the meeting of the Insurance Committee on May 25th it was resolved to circulate a memorandum by the medical adviser (Dr. J. E. Squire) on the selection of cases for

admission to sanatoriums, to the medical officers of health in each metropolitan borough. The memorandum stated that cases in which institutional treatment was most likely to be economically remunerative were those of young adults in the early stages of the disease, and that as a general rule, in proportion as the age of the patient rose above 25 or 30 years, the probability of complete arrest diminished, while the length of time required to arrive at arrest of the disease (when this did occur) increased. The first requirement, therefore, was to utilize the beds chiefly for cases of early tuberculosis in young persons. It would not be desirable, however, to exclude all the older cases from sanatoriums, for many such patients were able to earn a livelihood with occasional breakdowns. Extra nourishment was only of value in treatment when it supplemented ordinary food, and might well be restricted to those who were waiting for admission to the institution; those recently discharged, whilst getting back to work; and to the more chronic cases, who, with such assistance, were able to keep at work of some kind. As to the length of stay in the sanatorium, a three months' recommendation represented an expectation of permanent benefit, and a two months' and one month's recommendation an expectation of temporary improvement, possibly up to working pitch. At the end of these periods a report should be furnished and extension granted at discretion. It was important that medical practitioners should point out to patients and their wives the value of hygienic home conditions in keeping up the improvement after discharge. In some cases the cause of breakdown leading to application for readmission was the inability or disinclination of the patient to find work, thereby confirming him in invalidism. After-care organizations would do well to give special attention to procuring suitable employment for discharged persons.

Ireland.

DR. STEEVENS'S HOSPITAL.

SIR ARTHUR CHANCE, F.R.C.S.I., has been appointed consulting surgeon to Dr. Steevens's Hospital, Dublin. During the early years of the hospital's existence the consulting surgeoncy was usually held by the Surgeon-General to the Forces in Ireland, who was, *ex officio*, a governor of the hospital. Among the surgeons-general were John Nichols (1730–67), William Ruxton (1767–83), Archibald Richardson (1784–87), George Stewart (1787–1814), Soloman Richards (1814–19), and Sir Phillip Crampton, Bt. (1819–58). Among others who have held the position are Samuel Croker-King (the first President of the Royal College of Surgeons in Ireland), Ralph Smith Obre, Samuel Wilmot, James William Cusack, Robert Moore Peile, Christopher Flemming, Samuel George Wilmot, William Colles, Sir George Hornidge Porter, Bt., Edward Hallaran Bennett, and Sir Charles Bent Ball, Bt.

ULSTER MEDICAL SOCIETY.

The annual meeting was held in the Medical Institute, Belfast, on May 25th; the President, Dr. Gardner Robb, occupied the chair. The various annual reports were presented and passed, and the following officers were elected for the ensuing year:

President: Mr. Robert Campbell, M.B., F.R.C.S.Eng.
Vice-Presidents: Professor Symmers, M.B., C.M.Aberd., and Dr. Murphy (Lisburn).
Council: Mr. Howard Stevenson, B.A., M.B., F.R.C.S., Mr. R. J. Johnston, Dr. W. Burns, Dr. T. A. Davidson, Dr. Foster Coates, Dr. F. C. Smyth.
Honorary Treasurer: Dr. V. G. L. Fielden.
Honorary Librarian: Dr. W. L. Storey.
Honorary Secretary: S. T. Irwin.
Honorary Editorial Secretary: Dr. C. G. Lowry.

ROYAL MEDICAL BENEVOLENT FUND OF IRELAND.

The annual meeting of this society was held in the Medical Institute, Belfast, on May 30th, when the Vice-Chancellor of the Queen's University presided. Dr. V. G. L. Fielden read the annual report and the statement of accounts, which were received and adopted; and an appeal was made to all medical men in the neighbourhood to join the fund, and so enable the committee to meet the local needs, and to be able to aid the poorer districts. Professor Symington was re-elected president, Dr. Fielden honorary secretary and treasurer, and a large committee representative of both country and town.

Scotland.

AT a meeting of the Fife branch of the British Red Cross Society last week the interim county director (Dr. John Macdonald, Cupar), reported that on December 31st, 1915, there were thirty-one women's and fourteen men's Voluntary Aid Detachments in Fife, with a personnel of 955 women and 390 men.

At a meeting of the Fife and Kinross Education Committee on June 1st it was reported that the work of school medical inspection was practically at a standstill, as all the four assistant school medical officers were away. The Education Department had expressed a wish that the inspection should be continued, and the committee decided to advertise for a doctor—male or female—in order that the scheme might be continued in a curtailed form.

India.

THE LADY HARDINGE MEDICAL COLLEGE, DELHI.

IT is announced that the funds raised or promised in Bombay for the Lady Hardinge Medical College, Delhi, will provide for the erection of three cottage wards, an administrative block, and a senior professor's bungalow, leaving a balance sufficient for the establishment in Bombay of a maternity home to be named the Lady Hardinge Memorial Home.

WAR FUNDS.

Generous gifts continue to be made in India to various war funds. The Maharajas of Panna and Datia have offered to establish and maintain at their joint cost a convalescent hospital at Datia for one hundred sick and wounded soldiers, and the Maharahao of Sirohi is maintaining a convalescent home for sick officers from Mesopotamia. The Rani of Dhar and Seth Kastur Chand of Indore have given motor ambulances. The St. John Ambulance Association has recently been given a lakh of rupees by the Bettiah Raj and half a lakh by the Maharaja of Darbhanga. The Hooghly District Centre has given a fully-equipped laboratory launch for service in Mesopotamia, and a second is now under construction, being a gift from the same place through Lady Carmichael's Fund. The association has also received two large ambulance flats to take twenty-six cases, the cost of which has been mainly subscribed in Calcutta. Two motor launches, one the gift of the Central Provinces and the other of Mrs. McLeod of Bombay, are now nearing completion in Calcutta; all these boats are for service in Mesopotamia. Five motor ambulances have been given by the Birbhum District, Bengal, and several others are being prepared, including one from the Punjab Chiefs' Association and another from the Maharaja of Sirmur. The last-named chief has also lent a house at Dehra, and is endowing several beds in the war hospital there for a year. The Central Provinces, through Lady Robertson, have guaranteed 1,500 rupees a month towards the upkeep of the Indian Red Cross Dépôt at Basra.

DR. PUIG Y SAIS has reported to a Barcelona medical society the results of a statistical study which has led him to the conclusion that at the present rate of increase the population of Catalonia would take more than two centuries to double itself. Such increase as there was, he said, was largely accounted for by immigration of foreigners and of natives of other parts of Spain. The physiological increase of population in Catalonia fell, between 1886 and 1905, from an annual rate of 5.1 to one of 2.5 per 1,000. More recently it was 3.9, whereas for the rest of Spain it was a little over 9. The rate of increase was lower in Catalonia than in any country in Europe except France. He attributed this to a low birth-rate combined with a high mortality.

Correspondence.

SCIENCE AND ANTISCIENCE.

SIR,—Nothing measures more clearly the intellectual condition to which Britain has fallen than the fact that, even during the course of a life-and-death struggle, when one would think that every person not quite an idiot would be employed in some way, the crank papers continue to be hawked about in the streets. These papers pursue their absurdities just as when Britain had reached its lowest point of intellectual development before the war. A recent note on the cause of malaria in the *Abolitionist* is a typical production. In the *Journal of the Royal Naval Medical Service* for January, 1916, Staff Surgeon Leslie M. Morris, R.N., wrote an interesting account of the occurrence of malaria in H.M. ships *Hermione* and *Bristol* at Tampico in Mexico during 1914. The place is an intensely malarious one, as it contains large marshes in which multitudes of Anophelines (malaria-carrying mosquitos) breed. *Hermione* arrived without any protection in the way of wire gauze on December 13th, 1913. She was anchored fifty yards from the river bank, and the crew were forthwith attacked by legions of mosquitos, so much so that "it was at once realized that it would be necessary to screen the ship without delay." Of course this ought to have been done before the ship was ever sent to such a place. As quite possibly one in four of the mosquitos that came on board were infected, it is obvious that a large proportion of the crew could easily have become infected even during the first night of their arrival; and, as was to be expected, cases began to occur on the twelfth day after arrival. Meantime the officers set to work with promptitude to screen the ship—this could certainly not be done in a day. Another outbreak occurred in May, when the breeding season of mosquitos again reaches high proportions. This outbreak occurred in spite of the precautions; but here again every one with the smallest knowledge of the subject knows that it is absolutely impossible by any known precautions to prevent malaria entirely in a place where large numbers of malaria-bearing mosquitos exist—just as it is impossible by means of sandbags and shelters to protect an army from all casualties when thousands of shells are falling upon them. Sailors are especially difficult to protect, because, in spite of warnings, they will expose themselves to mosquito bites—owing to the irksomeness of confinement within wire gauze in a hot climate.

The *Abolitionist* seizes upon this text to mislead its foolish readers; but the writer of the note uses an old argument so silly that it should be again exposed as an example of this kind of literature. "Malaria, as all our readers know," he says, "is said to be caused by the mosquito. The difficulty in accepting this theory lies in the fact that the mosquito can only produce malaria in a human subject after it has fed upon a human already suffering therefrom; it still remains, therefore, a puzzle as to how the first man got it"! In the numerous lectures which I have delivered on the subject this difficulty is often raised at the end of the lecture; and I can always detect the man who is going to raise it by the vacuous expression of his face. The classical method of answering is to ask another question—namely, if the chicken comes from the egg and the egg from chicken, which began first? The *Abolitionist* seems to think in its dull way that there is some logical meaning in such a question. It implies that, because we cannot frame theories to explain our observations of to-day by what happened millions of years ago, our observations of to-day are, *therefore*, incorrect! Hence, as we cannot state whether the chicken or the egg came first, therefore it is not true that chickens come from eggs or eggs from chickens at all! As a matter of fact many explanations have been given of the point raised by the *Abolitionist;* but we must reply as Dr. Johnson is reputed to have done: "Sir, I have furnished you with an explanation—I cannot furnish you with an understanding." Whether his particularly childish argument ever deceived the writer in the *Abolitionist* himself, or whether it is merely put forward with the knowledge that his subscribers were too foolish not to be taken in by it, I cannot say; but these crank papers largely subsist on the subscriptions of old ladies, who do not know what to do with their money, persons of the kind we may see pulling about horrible little dogs to defile our streets and squares in London

The writer of this precious passage in the *Abolitionist* continues: "In our opinion, the responsibility lay with the lagoons and marshes which exist on both sides of the river, and which send forth their poisonous atmosphere from the moist, decaying vegetable matter under the heat of a burning sun." The marshes certainly cause malaria, but by sending out the mosquitos, not by emitting a poisonous atmosphere. But note the lofty strain of the scientific genius who wrote this passage—"In our opinion." One wonders whether even the most feeble-minded reader of the *Abolitionist* believes that the editor and staff of that journal have the smallest right to any opinion upon such a technical subject, or indeed upon any scientific subject.

But there is not only false argument in the paragraph referred to, but also some suppression which can hardly be otherwise than deliberate, because the author, in order to enforce his suggestion that the protective measures failed entirely, omits to mention the fact that *Hermione* was not protected at all when she first arrived, and secondly, omits all reference to the summing-up by Staff Surgeon Morris, that, "as the result of experience gained in these two ships employed in a highly malarial district, I conclude that the measures taken to screen the ships effectually prevented a very extensive outbreak of malaria." And he adds, "only one officer of the two ships contracted malaria," the truth being, of course, that the partial measures partially prevented the disease, and that without them probably every person in the ship would not only have suffered from malaria, but that many of them would have died of it. In conclusion, the author of the paragraph talks about "the folly of Sir Ronald Ross's bird experiments and their proofless demonstrations." The "proofless demonstration" is a new kind of philosophic entity, and it is almost impossible to conceive how persons considering themselves to be sane can be taken in by such twaddle.—I am, etc.,

London, June 6th. RONALD ROSS.

THE WAR OFFICE MEMORANDUM ON AMPUTATIONS AND AMPUTATION STUMPS.

SIR,—The War Office memorandum on amputations and amputation stumps is an excellent idea and should go a long way to obtain the best results for those members of our fighting forces unfortunate enough to lose their limbs. Two points in the memorandum, however, seem to me to call for criticism.

In the first place it leads the reader to suppose that in the case of a lower limb amputation it is desirable that the patient's weight should ultimately be borne on the end of the stump. This is a very common error, and since the war began I have several times seen men trying to walk on limbs so constructed that the weight had to be borne in this way, with the result that they were making very slow and painful progress. This is a most important point and cannot be too much emphasized. The end of an amputation stump, with the single exception of a Syme's amputation, should not, and cannot, bear the weight of the body. Attempts to make it do so are entirely wrong. In the case of an amputation above the knee the patient should bear all the weight on the top and sides of the stump—that is, should sit on the top of the limb. In an amputation below the knee the weight should be taken on the head of the tibia and fibula. It is never possible to take more than a very small amount of the weight on the end of the stump, and even this results in soreness. Sore stumps are the inevitable result of trying to take pressure on the end.

The other criticism has reference to the time after operation at which an artificial leg should be fitted. It is advised in the memorandum that four months at least should elapse. Why wait four months? The proper time to begin using an artificial limb is as soon as the wound is soundly healed. Shrinking of the stump always results from using an artificial leg owing to the unaccustomed pressure, and no amount of waiting will prevent this. On the other hand, it is of vital importance that the muscles which move the stump shall not be allowed to waste, as good use of the limb depends upon these muscles. The sooner, therefore, that the limb is fitted and the patient encouraged to attempt to walk, the sooner will he be able

to make good use of the limb, and he will not be handicapped by having to develop muscles which have been allowed to waste.—I am, etc.,

London, W., May 30th. P. LOCKHART-MUMMERY, F.R.C.S.

THE CONTROL OF VENEREAL DISEASES.

SIR,—As one who has studied Sanger's *History of Prostitution*, together with most of the modern books written in English on the subject, I should like to join issue with the view put forward by W. J. Young, of Cambridge, in your issue of May 20th. In regard to prostitution he apparently agrees with Thucydides that these things "always have occurred and always will occur so long as the nature of man remains the same." Surely this is a hopelessly unscientific attitude. The "nature of man" never does remain the same; it is capable of infinite variety in its manifestations.

Sanger wrote his book fifty-seven years ago, and, while it is a very interesting study of prostitution in many parts of the world and from the earliest times, it is somewhat superficial and not altogether reliable in view of more recent research. Two very important books have been written since Sanger published his book, and I think a careful study of Flexner's *Prostitution in Europe*, Chapters I, II, and III, and Havelock Ellis's *Studies in the Psychology of Sex*, vol. vi, will go far to prove that a great deal of prostitution has no relation at all to normal sex demand. Flexner rightly says:

> The important point to remember, from the standpoint of practical policy, is this: Supply is to some extent artificially created, and demand is to some extent artificially forced; the artificial processes in question are in greater or less degree socially controllable and modifiable. . . . Human nature is indeed weak on the sexual side, but the mass of existing vice is out of all proportion to what would exist on that account alone.

It may be true that some forms of sexual irregularity will always be found in the world, but all modern investigation shows that its present volume is capable of enormous reduction. We have only just begun to give any serious thought to the problem of prostitution. In the past, as Sanger points out, the general method, applied by fits and starts in occasional bursts of virtue, was burning, flogging, or imprisoning the women. It is scarcely wonderful such treatment failed, especially when one considers that sexual irregularity has generally been expected in men and chastity in women. The two theories are mutually destructive.

With regard to the little effect which moral societies have upon vice, no body of people is more conscious of this fact than the members of such societies, but they know, too, that the greatest obstacle to their work is neither the prostitute nor her customer. The thing which makes all moral and social reform work so intensely difficult, which produces both the prostitute and her partner, is that great body of public opinion which tacitly upholds the double standard of morals, and when it sees the result of its doctrines murmurs meaningless platitudes about "human nature."—I am, etc.,

ALISON NEILANS,
Assistant Secretary, The Association for Moral and Social Hygiene, 19, Tothill Street, Westminster, S.W.

May 23rd.

"THE SOLDIER'S HEART."

SIR,—Sir James Barr's recent paper on "The Soldier's Heart," in the BRITISH MEDICAL JOURNAL of April 15th, contained at least one remarkable sentence: "On causation he (Sir James Mackenzie) is not the only writer who flies to that resort for the destitute—microbes and their toxins—to explain all the ills to which flesh is heir."

Sir James Barr points out the association between "soldier's heart" and trouble in the ductless glands, and gives us a sketch of a vicious circle. He does not throw any light upon the factors which cause these glands to misbehave, though he approaches, somewhat inconsistently, the bacterial toxin theory in another sentence when he says, "In some febrile affections, such as diphtheria and pneumonia, the adrenalin function may be inadequate, and thus the controlling influence over the vasomotor system is lessened." Why must we draw the line rigidly at these two bacteria? Hundreds of other bacterial ferments have been described (Lehmann and Neumann's *Bakteriologie*) as primary or secondary causes of pathological states. A rise of temperature is not always found in subacute processes of a septic nature. The endotoxins of the influenza bacillus, *B. diphtheriae*, the gonococcus, the staphylococcus, and the great family of streptococci possess a wide range of action from which no tissue of the body can be regarded as absolutely safe, not even the elements of the ductless glands.

Summing up the gentle discussion evoked by his paper, he says: "The many toxaemias to which he (Dr. Harry Campbell) refers can easily be eliminated in cases of soldier's heart." It would be interesting to know the precise laboratory methods which Sir James Barr recommends for this important eliminative process. The field of a one-twelfth inch lens is very small, and Sir James Barr is right to insist upon the wide survey, particularly in these days of excessive specialization. But can he justify his apparently contemptuous references to the students of microbiology who are seeking the truth about that little leaven which leaveneth the whole?—I am, etc.,

London, W., May 29th. H. LYON SMITH.

LICE AND THE CLOTHES BRUSH.

SIR,—In the JOURNAL for April 29th, p. 630, is an account of the discussion on the means of lessening the incidence of infestation by lice. I note that one important adjuvant in the treatment of the clothing was not mentioned—brushing the seams of the clothes thoroughly. Personally, I rely very greatly on this treatment, especially for breeches. The men are made to turn the breeches inside out and thoroughly brush out the seams, any tacking threads being removed for this purpose. Paraffin, washing in cresol, and brushing, have in my unit taken the place of other methods in the destruction of lice.

I believe it was the late Field Marshal Viscount Wolseley who laid great stress on rubbing, shaking, and brushing the clothes when means of washing were not obtainable.—I am, etc.,

JOHN S. CLARKE,
Capt. R.A.M.C.

May 17th.

PARAFFIN FOR LOUSINESS.

SIR,—An effective and easily applied remedy for pediculosis I have found in paraffin oil swashed over the skin from neck to heels, avoiding the scrotum. The soldier strips, and dipping his hands into the bowl of oil slaps himself over his front and the orderly completes the business behind. There must be no rubbing or dermatitis would follow inevitably. The wetting being completed the man resumes his clothing at once.

I have employed this treatment in over a hundred cases, and with invariable success after one application only.—I am, etc.,

West Mersea, June 3rd. B. HALL.

HOW MEDICAL WRITINGS MAY BE GIVEN A MARKED DEVELOPMENT.

SIR,—I think Dr. Mercier has earned the thanks of the profession in reminding us of some of the rules of English composition which were taught to us at school, one of which—namely, to avoid tautology—Dr. Bramwell breaks more than once in the first sentence of his reply. Another rule which might be more frequently observed is to use a monosyllable wherever possible; yet another—study your Bible.—I am, etc.,

West Bridgford, June 3rd. H. E. BELCHER.

SIR,—Dr. Mercier is doing medical literature a distinct service by starting a crusade against the word "marked."

I first came across this word in full force in the medical department of a prominent American university. Since then it has spread through medical literature like a miasma.

In the meaning of "quite apparent" the word is permissible, but the word has run amok, and, as now used, is guilty of almost anything. It conveys to me about as much meaning as "damn," and other profanities. It may not be too much to ask medical writers to spare us the nauseating effect of the constant repetition of this word.—I am, etc.,

France, June 1st. FRED. W. E. BURNHAM.

SIR,—Of course Dr. Bramwell knows best, and I must reconcile myself as best I may to the doctrine that "marked" is the only adjective, and "markedly" the

only adverb permissible in medical writings. I am very, that is to say markedly, grateful to him for his strenuous, I mean marked, attempt to put me right; but when I find a writer making eight rather bad, I should say markedly marked, blunders in English in the course of one short letter, I have a decided, of course I mean a marked, disinclination to accept him as a final, or as it were marked, authority on the English language.

Following his advice, I have consulted the dictionary, and in it I find that a slop is "liquid carelessly dropped or spilt about," and sloppy means "covered with slops, loose, slovenly." These are precisely the qualities that I intended to express when I used the term "sloppy English." I meant language carelessly dropped or spilt about, loose and slovenly language. No doubt I ought to have said marked English, but *pace* Dr. Bramwell, I do not consider "sloppy English" a meaningless expression, nor do I consider it "somewhat vulgar," but then I cannot claim to be as genteel as Dr. Bramwell.

"M.D." has me on the hip, I must confess. I was so confident that Tennyson was the author of the quotation that I neglected to verify the reference, and I have met with the deserved and inevitable fate of those who neglect to verify their references.

Dr. Lipetz misunderstands me. I do not say it is incorrect to employ the word "marked" as an intensitive. For use in this capacity it will serve. It is not nearly as effective as blessed, or bally, or blooming, or some other word beginning with a "b"; but it will serve. I did not say that this use of the word is incorrect, and it is not incorrect. It is only stupid. What I intended to convey is that it is incorrect to use the adjective "marked" when we do not mean marked, but mean some other quality. If Dr. Bramwell and Dr. Lipetz like to use intensitives, or if they prefer to use a wrong word instead of a right one, on their own heads be it; no man can be compelled to write good English if he prefers to write bad. Dr. Lipetz asks if the word "marked" has not been used as an intensitive by good English writers. The answer, in classic phrase, is in the negative. He asks also if it has not gained general acceptance. I tried in my previous letter to point out that it has gained general acceptance among medical writers, and that it is high time it gained general rejection; but I founded my plea on the supposition that the indiscriminate use of the word was due to carelessness, or laziness, or want of consideration, or some other remediable cause. I must confess it did not occur to me that any one could be found to defend it as a justifiable practice. I should as soon have expected a defence of the practice of throwing orange peel into the street, or slopping tea on the tablecloth, if Dr. Lipetz will kindly excuse these weird and uncouth expressions.—I am, etc.,

Parkstone, Dorset, June 3rd. CHAS. A. MERCIER.

FEES OF LOCUMTENENTS.

SIR,—I would like, through the medium of your paper, to call attention to the excessive fees demanded now by locumtenents. For the last two years I have paid £7 7s. a week and expenses, but now £9 9s. a week is demanded indoors, expenses, and fees for the day travelling. I am well aware of the fact that the greater the demand the greater must be the remuneration, but there ought to be a limit. A few years ago men were glad to get £4 4s. a week, and if £7 7s. is paid I think it ample, especially now, when general practitioners are harassed in many ways, and doing much gratuitous and philanthropic work. If a general practitioner desires to take a week or two's respite for his health sake, I think it a scandal that they should be "blood-sucked" by members of their own profession. I would advise that all practitioners should boycott all locumtenents demanding more than £7 7s. a week, and this, I am sure, would bring them to understand what is their duty.—I am, etc.,

May 27th. M. W. B.

THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

SIR,—The time has come again for the election of Fellows into the Council of the College. The time has therefore come again to raise a protest against the exclusion of Members of the College from sitting on the Council.

If the war has taught us one principle more than another it is to recognize the rights of minorities and the importance of championing at all costs those who are suffering from injustice.

No one who knows anything of the history of the Royal College of Surgeons but recognizes that the perpetuation of an oligarchy and the disenfranchisement of a democracy lies at the root of the stagnation of life which exists in the Council of the College to-day.

During the last few years the medical profession has been through stirring times and great crises. A Council worthy of the name should have taken up these social and political problems, and have proved itself a guide, a protector, and a tower of strength to the surgeons of England. The Council, alas! has been satisfied to let great opportunities slide, and the only cure for this sterility is the introduction of new blood and the extending of the franchise to every Member of the College.

I have listened year after year to the excuses made by the President of the College for the shelving of this important reformation, and have been surprised at the absence of logic and of administrative foresight in those who are considered sufficiently wise to be admitted as members of the Council of a great College.

Many great changes which hitherto have been considered impossible have been brought about during the last two years by short Acts of Parliament, and if no other method can be found to convince the Council of the Royal College of Surgeons that they are out of touch with the sentiments and aspirations of the surgeons of England it may be necessary in this case also to utilize the machinery of Parliament.—I am, etc.,

London, E.C., May 28th. JOSIAH OLDFIELD.

THE ELECTION OF DIRECT REPRESENTATIVES ON THE GENERAL MEDICAL COUNCIL.

SIR,—In reply to yours of May 20th, I have no personal grievance, but I do protest against the policy adopted in 1906 and 1911, by which no one, unless he is a member of the British Medical Association and nominated by the Association, has the "ghost of a chance" of being elected as direct representative of the profession on the General Medical Council. At the election in 1911 Dr. Latimer had the lowest number of votes, and that was 7,173; the next was Mr. George Brown with 3,424. Mr. Brown's friends worked hard, but were powerless against an Association with Divisions extending from Land's End to Berwick-on-Tweed. The Association, with all their efforts, could not secure one-third of the electorate. If the Association would be satisfied to elect two out of the four for England, they would have all that their numbers warrant. Only about one-half of the doctors in England and Wales are members of the Association. I suggest that the four draw lots for two representatives for the 1916 election, and leave two for the medical profession who are not members of the Association to elect. The cost to do anything like justice to an election is considerable. It would be a wise thing to do, if possible, and to have four electoral areas, so that we could get into touch with our representatives. It is war time, and thousands are on active service. Still it should not be a walk over for the Association. Since my letter appeared I have been spoken to, but I see no hope of winning. If I consent, it will be as a strong protest to the Association's policy. "The grasp all" legally when "not morally entitled" is not worthy of the British Medical Association nor its traditions up to the recent past.—I am, etc.,

Blackpool, May 25th. J. BROWN, M.D.

Medico-Legal.

A CASE OF LEPROSY.

A CASE of some interest occupied Mr. Justice Darling and a special jury on May 15th, 16th, 17th, and 18th. It appeared that a Mr. Miller and his daughter, both of whom had lived for some time in India, took lodgings in July, 1914, at the house of a Mr. E. P. Humphreys in Bayswater. Mr. Miller was then suffering from leprosy. The following month Mr. Miller and his daughter took up their residence with Mr. Humphreys, and from that time until Mr. Miller's death in the following December he was attended by Dr. Harbord. On the occasion of Dr. Harbord's first visit to Mr. Miller at Bayswater Mr. Humphreys's manageress asked whether the former was suffering from an infectious disease, and was told he was not. In these circumstances Mr. Humphreys asked for damages on the ground that

it was no longer possible for him to continue to let lodgings at his house, and he also claimed the value of the furniture in the rooms which Mr. Miller had occupied. He made Miss Miller, Mr. Miller's executor, and Dr. Harbord all defendants to his action, which he based on breach of warranty, fraudulent misrepresentation, and conspiracy.

In addition to the above Miss Miller stated that she had seen lepers in India, and had suspected that her father was suffering from leprosy although she had no definite knowledge on the point, and a body of evidence was called on either side as to the nature of the disease in question. For the plaintiff, on the one hand, Dr. George Pernet, who was formerly the English editor of *Lepra*, stated that the general view was that leprosy was communicated from one person to another, but in what way was not known. Dr. H. P. G. Bayon, late bacteriologist at Robben Island to the Government of the Union of South Africa, said that he had studied the disease in many countries, and had examined about 2,000 cases, and that in his belief leprosy was contagious, though not highly so. For the defendants, Dr. Harbord said that the danger of infection or contagion from leprosy was practically *nil*, and that there was no risk whatever if the patient's effects were properly fumigated. Dr. Abrahams, consulting dermatologist to the West London Hospital, stated that the overwhelming body of opinion was that leprosy was only slightly contagious, and that some other condition must be present to make it so. Sir Malcolm Morris, a member of the International Leprosy Commission, said that he had never known a case of one person catching the disease from another.

The judge, after summing up the evidence, left eight questions for the jury to answer. The questions, with the jury's answers, were as follows:

1. Was Mr. Miller, when he took the rooms, liable to infect persons or the furniture with leprosy, and did Mr. Miller or Miss Miller know this?—Yes.
2. Is leprosy infectious or contagious so as to be, in England, communicable from the leper to another?—Yes.
3. Did Miss Miller and Dr. Harbord fraudulently misrepresent that Mr. Miller was a fit and proper person to occupy the plaintiff's rooms?—Yes.
4. Did Miss Miller and Dr. Harbord conceal from the plaintiff that Mr. Miller was a leper which made him unfit to occupy the lodgings?—Yes.
5. Did Dr. Harbord, acting as agent for Miss Miller and Mr. Miller, state to Mrs. Humphreys that Mr. Miller was not suffering from any infectious or contagious disease?—Yes.
6. Were these statements untrue to the knowledge of Mr. Miller, Miss Miller, and Dr. Harbord?—Yes.
7. Did Mr. Miller, Miss Miller, and Dr. Harbord conspire to conceal the state of Mr. Miller from the plaintiff, and make false statements to him for that purpose?—Yes.
8. Damages?—£250.

Upon these findings of fact Mr. McCall, K.C., who appeared for Dr. Harbord upon the instructions of the London and Counties Medical Protection Society, submitted that judgement should be entered for his client. He pointed out that the charges against him consisted of conspiracy and fraudulent representation; that with regard to the former charge there could be no actionable conspiracy unless it was a conspiracy to infringe a legal right of the plaintiff, and that there was no legal duty upon Dr. Harbord to disclose to the plaintiff the nature of the disease from which Mr. Miller was suffering or legal right vested in Mr. Humphreys to have such disclosure. With regard to the charge of fraud, counsel submitted that it must be shown that Dr. Harbord had made a statement without belief in its truth or recklessly as to whether it were true or false, and that there was no evidence that Dr. Harbord did not entertain the scientific belief which he had expressed—namely, that in this country leprosy was neither infectious or contagious. Mr. Gordon Hewart, K.C., for the other defendants, adopted the same argument.

Mr. Justice Darling, in giving judgement, said that there was no authority in law to support the proposition that there was a term implied in every contract to take furnished lodgings that the lodger was fit to occupy them, nor was there authority for saying that doctors who took patients to houses must make a full disclosure of the patient's state; such a rule would be difficult to enforce and difficult to define within reasonable limits. He held that there was no evidence to support the jury's finding that Miss Miller knew that her father was suffering from leprosy; that as regards Dr. Harbord's statement that Mr. Miller was not suffering from an infectious disease, the evidence was that he believed the risk to be "practically *nil*." In effect Dr. Harbord's opinion was that leprosy was not infectious in England. It could not therefore be said that Dr. Harbord's statement was fraudulent.

Upon these grounds judgement was entered for the defendants.

The Services.

EXCHANGES.

M.O. to R.F.A. Brigade attached to a naval division forming for service in France desires exchange with M.O. in 50th Division abroad.—Address No 1950, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Captain R.A.M.C.(T.), home service, wishes immediate exchange with officer in France in field ambulance, base hospital, or casualty clearing station.—Address 2200, BRITISH MEDICAL JOURNAL Office, 429, Strand, W.C.

Universities and Colleges.

UNIVERSITY OF OXFORD.

THE following degree has been conferred:

M.D.—John Howell Evans.

UNIVERSITY OF LONDON.

THE following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—*†‡L. G. Phillips, *†‡S. Ritson (University medal), L. A. Celestin, W. M. Crombie, C. L. de Silva, J. A. W. Ebden, D. S. Graves, I. H. Pearse, L. D. Phillips, Emma C. Pillman, A. L. Punch, L. N. Reece, D. G. C. Tasker, J. W. T. Thomas, A. H. Turner, Sibyl I. Welsh, A. Wai-tak Woo.

* Honours. † Distinguished in Medicine and Surgery. ‡ Distinguished in Midwifery and Diseases of Women.

The following have passed in one of the two groups of subjects:

Group I: Grace M. Griffith, C. E. Petley, B. Sampson, A. G. Simmins, E. C. Spaar. *Group II:* A. W. Adams, F. V. Bevan-Brown, B. M. Dannatt, W. H. Lloyd, Violet I. Russell.

Obituary.

DR. RIVERS-WILLSON, of Oxford, died at his residence in that city on May 19th, aged 63. He began life as a dispenser to the Radcliffe Infirmary, where he was able to study medicine, and, after working at the London Hospital, he took the diploma of L.S.A. in 1889. He set up in practice in Oxford and held for many years the appointment of district surgeon to the Oxford Medical Dispensary and Lying-in Charity. In 1912 he took an active part in opposing the original Government terms of the Insurance Act. Dr. Rivers-Willson prepared several educational works for the use of students, the best known being *Materia Medica and Pharmacy; Chemical Physics* and *Chemistry* were also useful compilations. All three were avowedly published for the benefit of candidates for the qualifications of the Conjoint Boards and the other diploma-giving corporations in the United Kingdom. Dr. Rivers-Willson was a Ph.D., a member of the British Medical Association, and a Fellow of the Royal Society of Medicine. He was an active member of the Oxford City Insurance Committee, and his health failed mainly in consequence of his exertions two years ago; yet he recovered and was able to discharge his medical duties almost to the date of his death. He leaves a widow and one son. The funeral took place at Wolvercote cemetery on May 25th.

DR. ALFRED GRACE, an elder brother of Dr. William Gilbert Grace, who died on October 23rd last year, has survived him just seven months, dying last week at Chipping Sodbury, Gloucestershire. Dr. Alfred was the second son of Mr. Henry M. Grace of Downend, Gloucestershire, where he was born on May 17th, 1840, being over eight years older than Dr. William Grace. He received his medical education at Bristol, and took the diplomas of M.R.C.S. in 1863 and L.S.A. in 1864. He was a member of the British Medical Association and Surgeon Lieutenant-Colonel, Royal Gloucestershire Hussars Yeomanry Cavalry. Dr. Alfred Grace was the last of five brothers, three of whom—W. G., E. M., and Frederick Grace—were famous cricketers. Alfred did not attain so much renown, though he played the game fairly. He was better known as a hunting man, being a superb rider.

THE death took place, on May 29th, of Dr. LÉON BLANC, the well-known consultant, at Aix-les-Bains (Savoie). Dr. Blanc was 75 years of age, and was well known in medical circles in London, where he usually spent the winter. He was the author of numerous communications bearing on "arthritism," and his persuasive eloquence did much to popularize the Aix treatment. He was the regular medical attendant of the late Mr. Pierpoint Morgan, who presented the town with a magnificent hospital, known as the Léon Blanc Hospital, to perpetuate the memory of his friend and medical adviser. A Savoyard of the old school and a past mayor of Aix, he died universally respected and regretted. He was Officier de la Légion d'Honneur.

Medical News.

THE name of George Cowie Grant, M.B., C.M., Dufftown, appears in the list of new justices of the peace for Banffshire.

WE regret to see the announcement of the death on May 27th of Dr. C. E. Fitzgerald, the well-known ophthalmic surgeon of Dublin.

DR. ROBERT ROBERTSON, J.P., Honorary Physician and Chairman of the Visiting Committee of the Royal National Hospital for Consumption, Ventnor, has been unanimously elected vice-president of the institution.

One of the most touching features of the funeral procession of General Gallieni on June 1st was a group of representatives of "Aide et Protection," the National Society of Mutual Aid for Mutilated Soldiers, in whose welfare the deceased general had shown a very active interest. The society, which already has a large membership of wounded men, was established by Ministerial decree, and is under the patronage of the President of the Republic.

THE national munition factories number seventy-five, and canteens have been established in all except a few small establishments the workers in which live close by. It has been found possible to provide a dinner of meat, vegetables, and a sweet for 8d. or 9d. The number of controlled works is about 3,500, and the provision of canteens for them is making good progress; firms which erect suitable buildings may set off their cost against excess profits. As was mentioned some time ago, the Health of Munition Workers Committee has issued a memorandum containing plans for temporary buildings for canteens.

WE learn from the *Journal of the American Medical Association* that the National Association for the Study and Prevention of Tuberculosis has received £20,000 from the Metropolitan Life Insurance Company to carry out a community experiment for three years with the object of demonstrating that tuberculosis can be controlled like any other infectious disease if right methods are adopted and adequate resources are available. It is proposed to choose a town or city of about 5,000 inhabitants, probably in New York or Massachusetts, and to apply there all the knowledge as to the treatment of tuberculosis available.

THE annual meeting of the Asylum Workers' Association was held on May 17th at 11, Chandos Street, W., the chair being occupied by the president, Sir John Jardine, Bt., K.C.I.E., M.P., who moved the adoption of the report, which was presented by the honorary secretary, Dr. Farquharson Powell. He drew attention to the war services of asylum workers, a very large percentage of male officers and attendants having joined the colours, while numerous nurses held Red Cross posts, or were employed in military nursing in the dozen or more asylums which had been converted into war hospitals. All, indeed, whether still remaining in asylum service or not, had felt the strain of the war, for asylum staffs had been seriously depleted, while the wards had become overcrowded in consequence of transfers of patients from asylums vacated for War Office purposes. The Executive Committee had continued their efforts to safeguard the interests of those serving as regards superannuation, etc., and it was hoped that they would be rendered secure by the recently passed Local Government Emergency Act. Private legislation was for the time suspended, but desirable amendments to the Superannuation Act of 1909 would be proceeded with as soon as opportunity permitted. The adoption of the report was seconded by Lieutenant-Colonel D. G. Thomson, R.A.M.C., president of the Medico-Psychological Association, and supported by Mr. Alfred Goodrich, late chairman of the London County Council Asylums Committee. Sir James Crichton-Browne proposed, in an interesting speech (in which he criticized adversely asylum treatment in Germany), the re-election as president of Sir John Jardine; this was seconded by Dr. G. E. Shuttleworth, and carried by acclamation. The election of the vice-presidents, Executive Committee, and officers was proposed by Dr. R. Armstrong-Jones of Claybury, and seconded by Dr. W. J. Seward, formerly of Colney Hatch Asylum, and, after other speeches by Dr. Fletcher Beach and the Rev. John Peck, the proceedings terminated. The balance sheet, made up to December 31st, 1915, showed £152 10s. to the credit of the association, the depletion of funds owing to diminution in annual subscriptions consequent on the war and other causes having been compensated by many generous contributions.

Letters, Notes, and Answers.

THE telegraphic addresses of the BRITISH MEDICAL ASSOCIATION and JOURNAL are: (1) EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2631, Gerrard. (2) FINANCIAL SECRETARY AND BUSINESS MANAGER (advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard. (3) MEDICAL SECRETARY, *Medisecra, Westrand, London;* telephone, 2634, Gerrard. The address of the Irish office of the British Medical Association is 16, South Frederick Street, Dublin.

☞ *Queries, answers, and communications relating to subjects to which special departments of the* BRITISH MEDICAL JOURNAL *are devoted will be found under their respective headings.*

QUERIES.

LOTHIAN desires to hear of a book giving hints as to exercises games, and occupations suitable for use in neurasthenic cases.

ATTENDANCE ON SOLDIERS BY CIVIL MEDICAL PRACTITIONERS.

X. Y. Z. writes: During April I attended a private in a regiment. At the end of the month I sent in my account to the officer commanding on Army Form O. 1667. Up to date I have neither received the money due nor any acknowledgement of my letter. May I ask what experience other members have had in similar case?

LETTERS, NOTES, ETC.

COLD FEET AND STUFFY HEADS.

DR. E. LLOYD-OWEN (Criccieth) writes: I find that through omission on my part of three words in my letter (May 13th, p. 708) under the above heading some of my medical friends have been puzzled. The sentence should have read: "Is there not during sleep a certain amount of anaemia *of the brain* (in spite of the horizontal attitude) resulting from determination of blood to the feet, and indeed to every part of the body covered by the bedclothes?"

MEDICINE AND THE NATIONAL VOLUNTEERS.

DR. H. J. HILDIGE (Pinner, Middlesex) writes: Now that the Compulsion Act has passed and it has become probable that most doctors under 41 may have to go, I am anxious to know whether there is a corps that we doctors who are over the age limit could join to get instruction in ambulance work. If a certain number of men in each Division could be persuaded to join, instruction classes might be arranged in a central district and the ordinary duties of camp work imparted. I think before long the Government will be making more use of the volunteers and it would be as well if we men over 41 knew something of the duties of field work, of which I must plead ignorance.

VALUE OF TUBERCULIN TREATMENT.

MEDICUS writes: In an article on "Results of Sanatorium Treatment" in your issue of May 27th, p. 763, I see that tuberculin administration has been discontinued at the Midhurst Sanatorium. Is this the case generally?

My own experience may be interesting. Five years ago tubercle bacilli were found in my sputum (my age was 54). I went at once to one of the high altitude places in the Engadine, where tuberculin was given me for three months by an expert authority on the administration of tuberlin. At the end of that time my larynx was badly affected, and my voice had gone to a whisper; pain and dysphagia were marked. I returned to England and continued tuberculin for another four months with every precaution. Laryngeal symptoms continued and got steadily worse. On the advice of an eminent throat specialist, who had been through my trouble himself, I gave up tuberculin, kept absolute silence, and went to Madeira, never expecting to return. In six weeks my laryngeal symptoms were gone; at the end of four months I returned a different being. I have had no recurrence, thank God, up to date of laryngeal troubles; my voice, though not a Caruso one, has become audible once more, and my weight is normal.

Was the disappearance of laryngeal trouble due to the discontinuance of the tuberculin or to the silence treatment aided by the climate of Madeira? (after stopping the tuberculin I had three injections of antistreptococcus vaccine). My personal opinion is that if I had continued tuberculin I would not now be penning these lines.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

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A whole column	3 10 0
A page	10 0 0

An average line contains six words.

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